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ABSTRACT

This document provides a curriculum that is comprised of workplace-specific literacy methods, materials, and assessment techniques that are customized yet broadly applicable. A process section introduces the curriculum by describing its development process. It discusses staff development, needs assessment, competency development, materials selection, and instruction. The section concludes with an evaluation of the curriculum development process. The product section consists of the curriculum itself, with a statement of philosophy and goals, student profiles, the scope of instruction, assessment and evaluation strategies, instructional techniques, course outlines, and sample lesson plans. Six course outlines (two in each area) are provided: English as a second language, general math, and reading/writing. Lists of subject area competencies are provided. Each course outline states the competency and then lists basic skills it encompassed, instructional activities, and instructional materials. The expected instructional outcome appears at the bottom of the lists. Sample lesson plans (two in each subject area) lists competencies, basic skills, level and duration of class, and resources, materials, and texts. This content is provided: warm-up/review, presentation, guided practice, application, and teacher comments. Appendixes include a 94-item bibliography, needs assessment instruments, and workplace competency checklist. (YLB)

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WORKPLACE LITERACY CURRICULUM: A COMPETENCY-BASED APPROACH FOR ESL, MATH, & READING

A PROJECT OF

THE U.S. DEPARTMENT OF EDUCATION NATIONAL
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and
COLLEGE OF LAKE COUNTY

In partnership with:

ABBOTT LABORATORIES
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MACLEAN FOGG
METALEX

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TABLE OF CONTENTS

Acknowledgements

Introduction

I. **Process Section** **1**

Grant Project Overview 2

Curriculum Development Effort 4

Staff Development 7

Needs Assessment 10

Competency Development 13

Materials Selection and Development 16

Instruction 17

Evaluation of the Curriculum Development Process 18

II. **Product Section** **21**

Program Philosophy and Goals 22

Profiles

- Combined Student Profiles 23
- ESL Class Profiles 24
- Math Class Profiles 24
- Reading/Writing Class Profiles 25

Scope of the Competency-Based Curriculum 26
- ESL Competencies-Abbott and MacLean 27
- ESL Scope 29
- Math Competencies-MacLean Fogg and Metalex 33
- Math Scope 35
- Reading/Writing Competencies-Baxter Healthcare and Reliable Power 38
- Reading/Writing Scope 40

Assessment/Evaluation 44

Instructional Techniques and Strategies 48

Course Outlines 57
  Combined ESL Workplace Competencies 58
  ESL Course Outlines-Abbott and MacLean Molded 59
  Combined General Math Workplace Competencies 82
  Math Course Outlines-MacLean Fogg and Metalex 83
  Combined Reading/Writing Workplace Competencies 102
  Reading/Writing Course Outlines-Baxter and Reliable Power 103

Lesson Plans 120
  ESL-Sample Lesson Plan at Abbott 121
  ESL-Sample Lesson Plan at MacLean Molded 122
  Math-Sample Lesson at MacLean Fogg 124
  Math-Sample Lesson at Metalex 125
  Reading/Writing-Sample Lesson at Baxter Healthcare 126
  Reading/Writing-Sample Lesson at Reliable Power 127

Bibliography 128

Appendix

  General Needs Assessment for Supervisors 136
  ESL Needs Assessment for Supervisors (Oral Version) 138
  ESL Needs Assessment for Supervisors (Written Version) 141
  Math Needs Assessment for Supervisors 143
  Reading/Writing Needs Assessment for Supervisors 145
  ESL Needs Assessment for Employees (Oral Version) 147
  Math Needs Assessment for Employees 150
  Reading/Writing Needs Assessment for Employees 152
  Workplace Competency Checklist 154

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INTRODUCTION

As the table of contents that follows will show, this document is divided into two major sections: **"process"** and **"product."** The **product** section comprises the curriculum itself, complete with a statement of philosophy and goals, student profiles, the scope of instruction, assessment and evaluation strategies, instructional techniques, course outlines, and sample lesson plans. The **process** section introduces that curriculum by describing the somewhat unique process through which it was created. In doing so, the process section first establishes the relationship between the curriculum development effort which produced this document and the National Workplace Literacy Grant Project at the College of Lake County of which that effort was part. Also described are the processes of staff development, needs assessment, competency development, materials selection, and instruction which led to the final product. The section concludes with an evaluation of the curriculum development process which will be useful to those who may want to adapt the process outlined here.

The curriculum itself, which emerged from six representative workplace classrooms at six different industrial sites, may prove directly applicable in other settings where the needs of workers overlap with those addressed here. Its main purposes, however, are to model a coherent and practical approach to workplace literacy instruction based on the use of workplace competencies and to demonstrate an approach to staff development based on the use of mentoring.

PROCESS SECTION

GRANT PROJECT OVERVIEW

The National Workplace Literacy project developed by the College of Lake County (CLC), Grayslake, Illinois, in cooperation with four area industries, designed a model workplace program consisting of assessment techniques, instructional methods and materials, evaluation measures, and support services that can be applied across industries and yet be adapted to meet the needs of specific companies (proposal 27). Direct funding for the 18-month grant project totals $373,000 and is provided through the U.S. Department of Education's National Workplace Literacy Program. Funding began on April 1, 1993, and ended on September 30, 1994. The curriculum development project, which this document reflects, was conducted from January through August 1994 as an intricate part of the grants projects.

The curriculum development effort, which this document reflects, was part of a National Workplace Literacy Grant Project involving the College of Lake County (CLC), located in Grayslake, Illinois, and four area industries. Direct funding for the 18-month grant project totaled $373,000 provided through the U.S. Department of Education's National Workplace Literacy Program. Funding began on April 1, 1993, and ended on September 30, 1994. The curriculum development effort itself was conducted from January through August of 1994 as part of the grant project.

GRANT PROJECT GOALS AND OBJECTIVES

In keeping with the mission of the National Workplace Literacy Program, the overall goal of the grant project was to create "a model workplace program consisting of assessment techniques, instructional methods and materials, evaluation measures, and support services that can be applied across industries and yet can be adapted to meet the needs of specific companies" (Proposal 27). Except for support services, all of the program components specified in this objective were directly addressed by the curriculum development effort which resulted in workplace-specific methods, materials, and assessment techniques that are customized yet broadly applicable.

INDUSTRIAL PARTNERS

The industrial partners involved in this grant project were Abbott Laboratories, Baxter Healthcare (I.V. Division), MacLean Fogg Company, and Metalex, Inc. Abbott Laboratories, located in Abbott Park, Illinois, is a major supplier of pharmaceuticals. The I.V. Division of Baxter Healthcare, located in Round Lake, Illinois, manufactures an antibiotic solution packaged in intravenous bags for hospital use.

Metalex, located in Libertyville, Illinois, manufactures expanded metal for use in building construction and in products such as air filters, ironing boards, and lawn furniture.

MacLean Fogg, located in Mundelein, Illinois, specializes in the manufacture of metal fasteners used in automobile production. Also, a part of MacLean Fogg are two of their companies: MacLean Molded, a company specializing in insulators used on high-power lines, and Reliable

Power, a manufacturer of various products used in the construction and repair of high-power lines. MacLean Molded and Reliable Power are located in Cook County, a considerable distance from the college, but were included in the grant proposal because of their connection to MacLean Fogg. All of the other project sites are within a ten-mile radius of the college.

Abbott Laboratories, Baxter, Metalex, and MacLean Fogg have some previous involvement with CLC's Workplace Literacy Program through participation in state grants or the use of contract services.

SERVICES PROVIDED

Throughout the grant project, curriculum development and instruction were closely linked, reflecting the idea that two areas of activity have a reciprocal rather than a sequential relationship. Emphasis was placed on conducting relevant on-site classes in which instruction was guided, not only by the general needs of the industries but also by the specific needs of the workers. A needs assessment conducted before the start of each class led to a short, preliminary list of competencies, or objectives, which was then revised as it continued in order to bring the course objectives increasingly more in line with the career development specialist who helped each student articulate his or her long- and short-term goals. He then helped each of them articulate how those goals might be achieved through further education and training.

Each of the industries involved provided an in-house coordinator for project activities, classroom space, instructional equipment, and worker release time. As the educational provider, the College of Lake County delivered services in assessment and advising, curriculum development, and instruction.

Basic skills assessments using standardized instruments were conducted at those sites where workers had not previously been tested. Test results were used along with input from in-house coordinators, supervisors, and workers to determine which classes to run at the various sites. The classes offered all fell into four categories: mathematics, reading/writing, English as a Second Language, and GED preparation.

All participants in a class met with the Career Development Specialist who helped students articulate their long-term and short-term goals and determine how they might be achieved. Throughout the grant project, curriculum development and instruction were closely linked, reflecting the idea that the two areas of activity have a reciprocal rather than a sequential relationship. Emphasis was placed on conducting relevant on-site classes in which instruction was guided not only by the general needs of the industries but also by the specific needs of the workers. A needs assessment conducted before the start of each class led to a short, preliminary list of competencies, or objectives, which was then revised as the class continued in order to bring the course objectives increasingly more in line with the needs and capabilities of the students served.

Over the 18 months of funding, the grant project served a total of 750 workers. Overall, 34 courses were offered totaling 1,856 contact hours. As the following section explains, the curriculum development effort itself focused on six of the courses taught during the winter of 1994.

THE CURRICULUM DEVELOPMENT EFFORT

The curriculum development effort, which will be referred to as the "curriculum project," was set up within the overall grant project in order to insure that innovative approaches to workplace instruction were being systematically developed, tested, adapted, and eventually described in a format which made their dissemination possible. A secondary goal was to enhance the expertise of a number of workplace literacy instructors at the College of Lake County, creating a core group of instructor-consultants capable of providing the grant partners with workplace literacy services of the highest quality.

PLANNING

Planning for the curriculum project occurred during the fall of 1993 and included, in addition to the grant staff, CLC's Workplace Literacy Training Coordinator, the Director of Adult Education, the Literacy Program Coordinator, the Associate Dean of Adult Education, and the Associate Dean of Adult Continuing Education.

During the planning stage, special permission from the Department of Education was obtained to expand the number of part-time curriculum developers from the seven originally budgeted to a total of nine, and to involve a consulting agency with expertise in adult education and workplace curriculum development to provide ongoing staff development and technical support.

COURSE SET-UP AND STAFFING

To assure that the curriculum development activities really met the needs of the industrial partners, the project director worked with each of the in-house coordinators to set up a total of six courses in the three subject areas of ESL, reading/writing, and math. In order to include all of the industrial partners, one such course was set up at each of the six project sites. Reading/writing courses were scheduled for Baxter and Reliable Power; ESL for MacLean Molded and Abbott; and math for MacLean Fogg and Metalex. All of these courses were scheduled to start after the December holidays and to run during a period roughly equivalent to CLC's spring semester. The length of these courses varied from a low of 26 contact hours to a high of 48, with each course meeting from 2 to 4 hours per week for a total of 11 to 13 weeks. All staff development was complete; the next stage of the curriculum development process began. Curriculum development teams needed to visit each of the companies in order to determine the needs for both the workers and supervisors. In preparation for this needs assessment stage, several sample questionnaires were reviewed and revised. Designing these questionnaires was a crucial part of the preparation for the sites. They were developed for the supervisors: one general one for the company as a whole and one specific one for each of the content areas. One team also developed a questionnaire that could be filled out by supervisors who were unable to attend the interviews.

In cooperation with CLC's Workplace Literacy Training Coordinator and the Director of Adult Education, the Project Director recruited nine of CLC's most experienced workplace literacy and adult education instructors, some of whom were already familiar with the participating industries, to serve as curriculum developers. Three ESL, three reading, and three math instructors were recruited in order to form disciplinary teams of three members each. Each team was assigned responsibility for two of the six classes. Two of the members of each team served as classroom instructors, leaving a third team member free to observe the classes taught and to assist with the development of customized lesson plans, teaching materials, and evaluation techniques.

All of the nine participants worked 20 hours per week for the duration of the curriculum project and were paid a fixed hourly rate established by the college for curriculum development. In addition, the six course instructors received teaching contracts.

CONSULTANTS

The curriculum development teams were supported in their efforts by a group of three consultants from the Adult Learning Resource Center, each with extensive expertise in one of the three areas. The consultants worked jointly to provide a series of workshops on various topics associated with workplace curriculum development. Each consultant also served as a mentor for one of the three teams, spending a minimum of one half day per week with the team to review their work and provide technical support. During the final stage of the project, a fourth consultant with editing experience prepared the final document for publication. In addition, the Assistant Director of the Adult Learning Resource Center worked closely with the Project Director.

CURRICULUM DEVELOPMENT PHASE

The curriculum project actually began during the second week of January and continued through mid-August. During this time, the activity divided roughly into two phases: a development phase and a publication phase. During the development phase, the nine participants received training in workplace curriculum development from the consultants, prepared for formal site visits by creating a variety of interview forms, conducted the site visits in teams, generated the course objectives, submitted them to the in-house coordinators for review, prepared customized pre- and posttests, and then taught the six courses during which customized lesson plans and course materials were collaboratively developed. During this period, which lasted from January to May, the participants also reviewed model workplace curricula provided by the consultants and made decisions concerning the overall format for the final product. Some writing began toward the end of this phase with the development of the course outlines as the scope for each subject area.

PUBLICATION PHASE

During the publication phase, which began in mid-May and ended in mid-August, collaborative teaching gave way to collaborative writing as the work begun in January was consolidated and put into publishable form. One member of each team formed an editorial group of three who helped coordinate the writing of the six other participants and authored several of the sections. During this phase, the consultants reviewed drafts of the work in progress and also did some of the writing, including the section on staff development. The

Project Director also reviewed drafts, wrote some of the introductory material, and worked with the editorial group and the consultants to coordinate the writing process. By the end of June, the curriculum was ready for final editing which occurred over the last six weeks of the publication phase.

STAFF DEVELOPMENT

USE OF CONSULTANTS

Three Instructional Resource Consultants from the Adult Learning Resource Center (ALRC), representing the content areas of reading, math, and English as a Second Language (ESL) provided ongoing staff development support to the curriculum teams from January through June 1994. ALRC involvement with the project, however, began in September of 1993 when two consultants conducted a full-day workshop titled "Creating Curriculum for the Workplace" for staff from the College of Lake County and representatives from the four business and industry partners. This workshop provided participants with the opportunity to understand each other's goals and objectives and to share perceptions about each other's "worlds" while learning about curriculum development.

A second full-day workshop for the education and business partners, "Creating Lesson Plans for the Workplace", again conducted by two consultants from the ALRC, was held one month later in October 1993. This extended the opportunities for the education and business partners to continue the dialogues begun in September and to expand their common knowledge about workplace lesson planning and material. ALRC consultants met with the curriculum team three days a week (four hours a day) in January and one to two days a week February through June. The amount of time spent by the consultants was based on the needs of the curriculum teams

WORKSHOPS

The staff development activities from January through June were both process and product oriented. So that all members of the curriculum team were working from a common knowledge base that combined theory with practical applications, a number of workshops were conducted from January through March. The first set of workshops were developed to address all aspects of the curriculum development process:

- needs assessment
- site visits
- identifying and writing competencies
- instructional assessment including traditional and alternative ways to place students in classes and monitor their achievement

The next round of workshops concentrated on issues related specifically to lesson planing and classroom management. Workshops were conducted for the teams on such topics as:

- multilevel class management techniques
- cooperative learning structures
- team-building
- problem-posing

INSTRUCTIONAL SUPPORT

ALRC consultants provided staff development support in other ways, too. During large group discussions, small group consultations, and individual conferences, they shared resources, classroom materials, student texts, and instructional methodology and techniques with the team members. Initially, the ALRC consultants brought examples of workplace curricula from projects around the U.S. for the team members to read and use as references. As the months passed, the team members themselves found curricula to share with the consultants. Their efforts produced an excellent workplace education reference library.

One area in which the math team excelled was in identifying appropriate computer software to enrich and supplement instruction. Employees enrolled in math classes were fortunate to be at sites with computers for instructional use. The math consultant and math team members enthusiastically spent hours sampling software to use in the math curriculum. No computer software for reading and ESL was cited in the curriculum because there were no computers available for employees who were enrolled in those classes.

The curriculum team members had extensive experience teaching ESL, reading, or mathematics. While all had some previous workplace experience, becoming more familiar with workplace instructional materials and techniques was valuable for them. Every teacher created customized instructional materials to reflect the competencies determined during the employer and employee needs assessment phase of the project, but they also used commercial textbooks. They generally used a textbook to introduce new material or for student practice. The workplace transfer was accomplished by using teacher-made, employer-specific materials. The curriculum team members developed materials together under the guidance of the consultants.

MENTORING

Mentoring, combined with instructional support, was another important feature of the consultative services with the ALRC. A content-area consultant was assigned to work with each team, and one of them also had the overall responsibility of making sure that the teams were provided with the expertise needed to accomplish their writing tasks. As the project progressed, consultants visited workplace classes and provided feedback on lesson planning, evaluation, materials, and techniques.

OPPORTUNITIES OUTSIDE OF THE PROJECT

Professional growth opportunities outside of the grant were also available to the curriculum team members. During the period of January through June 1994, there were a number of local and state conferences and meetings which they attended. Some were sponsored by local education agencies and others by state and national professional associations.

PROCESS AND PRODUCT

The consultants also assisted the curriculum teams in writing the final process and product documents. They served as sounding boards, critics, and editors. The writing process was not an easy one, as anyone who has been involved in a collaborative writing project is aware. Thus, this project really did involve staff development to supplement the content knowledge of the nine-member curriculum teams and staff development in the writing and publishing process.

All nine teacher-curriculum developers were actively and intensively involved in the writing of the process and product documents (the ones you are now reading). The classroom teachers met frequently to decide format and content, and then the non-teaching member of each content team was designated as a member of the three-person editorial team. Work was assigned and filtered through the editorial teams, the consultants, and the project director. Finally, additional staff was assigned to prepare the final documents.

NEEDS ASSESSMENT

In preparation for the needs assessments, several sample questionnaires for site visits were reviewed. Development of interview questionnaires for the teams to use followed after much discussion. Designing these questionnaires was a crucial part of the preparation for the site visits. The questionnaires were essential whether filled out in their entirety, partially, or only used as guides when asking questions of supervisors or employees. Two were developed for the supervisors-one general and one specific to each content area. One team also developed a questionnaire that could be filled out by the supervisors who were unable to attend the interviews.

The general questionnaire gleaned information about the company including history, products manufactured, types of jobs, and length of time employees had been with the company. The three teams queried both supervisors and employees as to the skills needed to do jobs better and possibly advance within the company.

The interviews were conducted in one of two ways. In some companies, all of the supervisors came in together followed by a group of employees interested in the course to be offered. In others, the supervisors came in one at a time followed by small groups of employees or individual employees.

Supervisors and employees alike were extremely cooperative and helpful. The supervisors brought in samples of manuals or company documents which the employees needed to be able to fill out, read, or interpret.

After these first two vital steps were completed, tours were taken of the work sites. On the tours, it was possible to see where the employees worked and what they did on the job. The teams also located the supervisors' work stations, and this was beneficial for future discussions when specific problems and questions arose. The one- to three-day company tours, along with the company documents and needs assessment interviews, enabled the teams to develop a customized competency-based course outline for each company. All team members agreed that the company contacts and site visits were necessary and valuable for the development of the curriculum.

From these site visits many needs were identified. Some needs were very concrete and obvious:

1. fill out company forms accurately
2. read charts and graphs
3. do mathematical conversions
4. make accurate measurements
5. greet people
6. call in sick at the appropriate time
7. write memos and explanations of problems
8. read and complete a variety of work-related materials

Some needs were less definable:

1. think and feel secure with math
2. think critically in work-related situations
3. have better organizational skills
4. have more confidence and self-esteem
5. be independent thinkers
6. approach problems and solve them

It was interesting that the needs overlapped between content areas as well as between companies.

To give a stronger sense of what the site visits entailed, the following is an actual summary of one such visit conducted by the ESL team:

> The director of education gave us the basic overview of the company, and she introduced us to the various products and customers. We will have to be careful about any work with blueprints because these are confidential. They have used bilingual people to train their non-English speakers in the past, but now most of the supervisors speak only English.
>
> The plant manager sees a great need for the students to understand basic English. They need to know the tool and product names. A knowledge of Material Safety Data Sheet (MSDS) notices concerning certain irritants and toxic substances is needed. Insurance forms have been a problem. Employees do not understand the process of applying for a job.
>
> They feel they can come in, apply, and start work immediately. They do not understand the need for a physical, drug screening, etc. They have a problem calling in sick or late. They talk to a person and can get their point across, but they do not call in at appropriate times. They have trouble clarifying instructions when they do not understand. Other problems include salary confidentiality, figuring vacation time, and understanding their annual salary review. They do not realize the importance of handling forms. Basic charting of temperatures or performance of materials is incorrect. They are recording the temperatures they think the management wants and not the real temperatures. Safety is a minor issue. Quality control is a big problem.
>
> There is some cross-training concerning two major processes. Most workers do both. The workers hold various jobs such as molding, welding, finishing, and assembling. Most have only a few years of education. Several have five to seven years of employment at the company although several new employees were recommended by family members in the company. Most are male, in their mid-twenties, and live in Chicago.

The company is interested in the general education of its employees as well as workplace literacy skills acquisition. Self-confidence and self-esteem are important. The foremen are fully enthused, and there will be no problem over release time for the classes. Some students will be given half release time and others full release time depending on the shifts.

The personnel director would like to see the workers improve their understanding of various applications and forms. They need to learn clarification techniques, summarizing, and how to give personal information. Profit-sharing, insurance, and vacation request forms also cause problems.

COMPETENCY DEVELOPMENT

This curriculum is competency-based. A competency is defined as the demonstrated ability to perform a task successfully. In the workplace, this means the ability to perform a task for the job. Each competency requires its own set of basic skills necessary to perform the task.

A competency-based approach was chosen because it lends itself to the needs of both the companies involved and the individual workers as students. The chief goals of any business are to increase profits and service to its customers. The competency-based approach makes its highest priority helping the workers gain skills that will assist them in doing their jobs better, and, thus, improve the company. Because this approach is company specific, it promotes transference of learning between the classroom and the job site.

From the students' point of view, the competency-based approach reflects the tasks which are relevant to them within the context of their jobs. It also permits individualization as students progress through instruction at their own pace with multiple opportunities to demonstrate competency.

The process of developing the competencies for the six classes in this project began after site visits to each of the industries involved. The needs of each company were determined through talking with human resource personnel, managers, supervisors, and production workers about the desired outcomes for the classes. Touring the job sites and observing employees' jobs provided more ideas as to the tasks and skills involved.

Initially, developing the competencies was somewhat difficult. Each team of curriculum developers had to go through the process of agreeing upon a definition for competencies and for a competency-based curriculum for the workplace. It was also difficult to create competencies which encompassed the skill needs identified by certain supervisors and employees and to find the best wording for the competencies themselves. However, with the help of the consultants, the curriculum teams developed the ability to word the competencies so they would function as job-specific "umbrellas" for a variety of basic skills.

An example from the math curriculum will illustrate the process of developing a competency. On one of the initial site visits, the human resource director for one of the companies spoke of a need for employees to better understand how payroll deductions for insurance and pensions were calculated. Several of the employees discussed their desire to be able to better predict net pay when they had worked overtime. One of the supervisors expressed a need for his workers to be able to do basic math operations more accurately. From these three expectations emerged the competency: "Calculate net pay for a specified period." The basic skills involved were the abilities to add, subtract, multiply, and divide both whole numbers and decimals. When the class was taught, the employees were assessed on their initial mastery of this task, taught the basic skills they individually needed, and then checked on their level of mastery.

The reading/writing team found that the expressed needs of the two companies where their classes would be held were very different, and, thus, distinctive approaches to the competencies were taken. One company wanted to include affective needs such as improved self-confidence while the other company wanted skills enhancement for compliance with ISO 9000. The initial competencies were written by the individual instructor and the reading/writing team. Although the targeted skills did not change significantly, the competencies underwent many changes as the classes developed and the students' needs became better known.

This was also the case for ESL. In one of the ESL classes, for example, an initial competency dealt with answering questions. As the class progressed, it became apparent that this competency should also include the skill of asking questions since this was something that the students felt they needed on their jobs. The competency was changed to reflect employee input on the skills necessary to accomplish the task.

Before the beginning of each class, the curriculum developers gave the company a list of the initial competencies for approval and further input. All of the companies seemed pleased with the approach and with the specific competencies developed for them. One supervisor requested a math competency be added and this was done. As this same math class progressed, the instructor spoke often with the floor supervisors about the needs of the workers on the job, and from these conversations yet another competency developed. In another math class, it was discovered that the students who actually enrolled were not all from the departments for which the competencies had been set up. Two things developed from this situation: there was some revision of the competencies, but the instructor and students also discovered the benefits of mastering tasks that could be useful when switching departments or applying for promotions.

A competency-based approach for workplace education does have some disadvantages:

1. It may not be immediately apparent to the students that this approach teaches them the skills they want.
2. It requires extensive pre- and posttesting.
3. Tests have the potential to make the students feel uncomfortable.
4. It is difficult for some teachers to utilize this type of non-sequential instruction.
5. Competency-based materials are not readily available, which means that teachers must spend a great deal of time customizing assessments and instructional materials.

However, a competency-based approach has many advantages for both employers and students:

1. It lends itself to work-related education by prompting teachers and workers to focus on company needs.
2. Competencies directly apply to the job, and the basic skills are easily transferable to lifelong learning.
3. It is readily adaptable to individual students' unique learning styles and paces.
4. The customized materials make the learning specific to a company's needs.

5. Even a short-term class can accomplish a great deal for a company because this approach recognizes the base of knowledge and skills that workers have and attempts to fill in the gaps that are apparent.
6. The mastery of the actual task is measurable.

MATERIALS SELECTION AND DEVELOPMENT

The materials selection and development process for the Workplace Literacy Project involved extensive reading of related reference books and articles and the careful study of available textbooks by the team members. In addition, sample workplace curricula were valuable in providing a framework and a point of reference for the development of a competency-based curriculum. The business partners willingly provided the team members with materials that could be adapted for the classroom. From these workplace materials, numerous teacher-made products developed.

Teacher resource materials came from various sources. The College of Lake County provided all instructors with reference materials and many samples of textbooks. The individual libraries of participating teachers were shared with members of the curriculum writing team. A continual sharing of pertinent articles among the participants helped to keep the team on target with competency-based curricula. The consultants from the Adult Learning Resource Center provided appropriate reference materials and many workplace specific applications for techniques and instructional strategies. The consultants provided ongoing resources for use in the classrooms and for the development of the curriculum. Included in these resources were samples of appropriate curricula which were used as models in the structure of the final product.

The texts selected for the participating classes were decided upon based on teacher experience and a text selection workshop at the College of Lake County. This workshop, which was conducted by the Workplace Literacy Training Coordinator, allowed opportunity for the perusal of multiple texts representing various styles and emphases. The driving force behind the text selection was the need for flexibility to accommodate multilevel classes and the adaptability of the materials to the workplace. A complete list of texts and resource materials is given in the bibliography.

Teacher-made materials were used in all three content areas. These were adapted from company documents, forms, and memos. Some lessons incorporated actual workplace forms and documents; other lessons utilized textbooks and related exercises with adaptations made for the workplace. Each content area generated a variety of materials. For example, the ESL instructors used many teacher-made instruments to supplement commercial materials. Through the use of a company document, students scanned for specific words such as last name, first name, and social security number. ESL students played Bingo using measurement abbreviations; this aided in the reading of recipes. The math team focused on using a Specific Process Control (SPC) chart. Students calculated the range, averaged the data, plotted points, and determined upper and lower limits. For help in developing materials for computer and calculator use, the math team visited Glenbrook South High School to observe an application-based math curriculum as developed under the University of Chicago Math Project. The reading/writing instructors, as part of their vocabulary instruction, constructed sentences which initially used high-interest topics from the students. The sentences served as the means to develop the vocabulary competencies and apply learned skills to workplace materials.

INSTRUCTION

The companies in this project provided centrally-located classrooms. In order to accommodate more students, class time was scheduled between shifts. All the companies offered full release time to the employees who attended classes. Generally, the size of the classroom was adjusted to fit the assigned space. Even though noise levels in the factories were high, the classrooms were relatively soundproof. Classrooms were equipped with several of the following items: blackboards, whiteboards, overhead projectors, dictionaries, pencils, paper, notebooks, and folders. In the math classes, students used their own calculators or calculators provided by the instructor. Two sites provided computers for the students to use during class time. All of the companies were willing to accommodate any supply needs of the instructors and students.

In order to adapt to the wide range of student abilities and specific company needs, teaching in this project required customized lessons. Most class formats were multilevel. The instructors prepared the same lesson plan with different levels of difficulty and/or different expectations based on these varying abilities. Flexible grouping of students with similar abilities also facilitated instruction and practice. Even within the more homogenous classes, different ability levels were evident and managed in a similar manner.

One of the greatest assets of this project has been the team creation of the lesson plans. Everyone was involved with lesson planning, pooling ideas, creating teaching materials and assessment tools, and providing feedback to the teachers about lessons. All the teachers agree that the opportunity to interact, share, and problem solve together was a real learning experience. This interaction became their best resource, and they felt this was the ideal of the teaching experience. It was a very supportive, positive, and indispensable approach that definitely improved the quality of instruction.

EVALUATION OF THE CURRICULUM DEVELOPMENT PROCESS

In keeping with the overall goal of modeling successful approaches to workplace literacy, this section evaluates the curriculum development process just outlined so that those interested in adopting or adapting it will know how well it worked. This evaluation reflects multiple points of view, specifically those of the instructors/curriculum developers (referred to as "the participants"), the students, the project staff, the external evaluator, and the industrial partners.

POSITIVE RESULTS

Data collected on student progress suggests that workers involved in the six classes made discernable progress. In all three of the subject areas (math, reading/writing, and ESL) a majority of the students demonstrated mastery of a majority of the competencies. Seventy percent of the math students, 62 percent of the reading/writing, and 87 percent of the ESL students mastered 50 percent or more of the competencies as determined by the pre- and posttests given by classroom instructors.

Student self-assessments conducted at the end of each class showed that the students shared these positive perceptions. The math students reported an increased understanding of the math calculations they perform on the job, increased ability to use the calculator, and increased confidence in their math ability, along with enhanced job effectiveness overall. The students in the reading/writing classes reported improved ability to read company manuals and other documents, deal with unfamiliar vocabulary, look up information needed on the job, and complete written documents. The ESL students indicated that their abilities to understand and speak English at work, to complete company forms, and to ask questions when needed had all shown improvement.

For various reasons, the survey forms designed for use by the students' supervisors proved difficult to collect, but those that were returned indicated similar positive perceptions of student progress as a result of the grant project courses.

These positive results may be due, at least in part, to the competency-based approach adopted for the curriculum development project, an approach which sharply focuses the efforts of students and instructors on the attainment of a limited range of workplace skills and which makes the measurement of progress with the use of customized tests possible.

For the project participants (the nine instructor/curriculum developers), the collaborative nature of the project afforded multiple opportunities for professional growth. Final evaluations completed by the participants all reflect the value of exchanging teaching ideas, both within the discipline groups and across groups. One participant wrote:

> This was the ideal educational environment. We had nine teachers freely exchanging ideas, materials, and expertise unselfishly. Everyone was open to new ideas and creative criticism. We joyfully gave to each other without hesitation.

This participant went on to say, "I have learned more in the field of ESL and workplace education in the last six months than I have learned in the last six years."

Linking the curriculum development process to ongoing classes also worked well, judging from the participants' responses. One wrote:

> To have two teachers on each team teaching at the same time as the curriculum was being developed was an integral part of the process. This gave us a chance to develop materials and test them and to try various techniques. I can only say wonderful things about the whole team and what I have gained, personally and professionally.

From the point of view of the full-time grant staff, bringing together nine part-time instructors in this structured way created a means of meeting the various needs of the industrial partners and of producing a publishable curriculum. When workplace literacy instructors are employed individually on a course-by-course basis, as they often are in community college settings, it can be difficult to develop a coherent approach to instruction or to create the customized instructional materials and assessment tools so crucial to teaching successfully in the workplace. Bringing some of the CLC's best part-time instructors together, offering them the time needed to customize their instruction, and supporting their efforts through the presence of consultants and College of County staff skilled in workplace literacy made it possible to achieve the project goal of creating a model workplace literacy program.

Having the consultants available on a continuing basis as mentors was helpful throughout the project, but it proved especially important during the very intensive period of needs assessments and course start-ups which occurred over the first two months of the curriculum development project. During this time, the consultants were able to follow up the workshops they conducted by actually walking the teams through the process of preparing for and conducting formal site visits, generating competencies, creating customized pre- and posttests, creating and selecting materials, and beginning instruction. One participant wrote, "The consultants were extremely helpful in providing background information and guidance in conducting the site visits and needs assessment."

During a visit to the project, which occurred during the fourth month of the curriculum development effort, the external evaluator met with the participant teams, along with their consultants, and carefully reviewed the materials produced to that point. In a follow-up letter to the project director, she wrote:

> The curriculum development effort appears to be very strong. The training and technical assistance seems to be excellent. I saw competencies identified for each class and each company that appeared to be appropriate. Basic skills were related to the competencies. Customized job-specific and job-related materials, including customized criterion-referenced assessments, were developed for the skills and competencies. The team approach to curriculum development seemed to be working very well. Having the curriculum developers also teach classes is a very good idea as a pilot test of the curriculum being developed.

DIFFICULTIES

While there was general agreement among the project staff, the participants, the consultants, and the evaluator that the curriculum development effort achieved its major goals, there were some unanticipated problems which are discussed below.

The start-up period, during which introductory workshops, site visits, and course start-ups all had to be accomplished in a very compressed time frame. After the first few weeks, it was obvious to everyone that building in more time up front to orient the participants, clearly define the roles and expectations of everyone involved, and prepare for the site visits would have made the start-up period more successful.

Because of the large number of people involved in the curriculum project, coordination naturally proved difficult at times.

PRODUCT SECTION

PROGRAM PHILOSOPHY AND GOALS

PHILOSOPHY

The College of Lake County's National Workplace Literacy Project is based on the principle of lifelong learning and the commitment to a reciprocal relationship between business and education.

GOALS:

- To upgrade the skills of workers in response to the stated needs of **both** employees and employers
- To design and deliver educational programs through a competency-based curriculum that emphasizes work-specific reading, writing, mathematics and language skills
- To provide employees with opportunities to develop confidence in their abilities
- To provide ongoing evaluation of the instructional effectiveness of all aspects of the program

COMBINED STUDENT PROFILES

SEX	PERCENTAGES
Male	69
Female	31

ETHNIC ORIGIN	
Asian/Pacific Islander	6
Hispanic	50
Black/Non-Hispanic	10
American Indian/Alaska Native	0
White Non-Hispanic	34

AGE	
20 - 29	22
30 - 39	22
40 - 49	26
50 - 59	15

LAST LEVEL OF SCHOOL COMPLETED	
0 - 3	3
4 - 6	10
7 - 9	18
10 - 11	15
12	6
GED	6
13 - 14	8
Unknown	5

NUMBER OF YEARS WITH COMPANY	
0 - 2	26
3 - 4	18
5 - 10	27
11 - 15	13
16 - 20	10
21 - 25	3
26 - 30	3

ESL CLASS PROFILES

The Abbott food service class had a total of seven students - one male and six females. Six of the students were from Mexico and one was from Vietnam. The ages ranged from 27 to 57. Most of the class had eight years or less of school in their native country. One had three years and three had twelve years. Two of the latter graduated from high school in the U.S. There was obviously a great range of education, but most were at an intermediate level in ESL. They spoke and understood English fairly well, but their reading and writing abilities varied widely. They had been employed by Abbott from three to four years, and they worked in a variety of food service jobs including salad bar, breakfast, and pastry cook.

The MacLean Molded class had a total of eleven students - two females and nine males. They were all Hispanic with one from Puerto Rico and the remainder from Mexico. They ranged in age from 22 to 57 years of age. The highest level of education attained in the native country was the tenth grade with the rest averaging seven years of schooling. The class consisted of students ranging from the pre-beginning to beginning levels. For the most part, they did not speak or understand English and had little to no reading or writing ability. They had been employed by MacLean Molded from three months to seven years. Three years was the average length of time with the company. They worked in a variety of jobs including welding, molding, and assembly. Most of the students were working extra hours according to the supervisory staff; some of them came to class after working a ten-hour shift.

MATH CLASS PROFILES

The MacLean Fogg math class had thirteen registered students, all of whom were male. The age range was 23 to 57, with the largest group being in their forties. The employees represented a number of different departments at MacLean Fogg. Five of the thirteen students had been with this company for two years or less and the others ranged from three to thirty years. The education levels ranged from a student with six years of schooling to an employee from another country with some university training. As far as skills, this was definitely a multilevel class; some students were just learning basic multiplication and division skills while others were at the pre-algebra and pre-geometry levels.

The Metalex math class had eight registered students, all of whom were male. The age range was 23 to 55 years, with the students evenly distributed throughout the range. These employees represented a number of different departments and jobs at Metalex. Half of them had been with the company for one to two years, and the others' years of service ranged from five to thirty years. Two of the students had finished tenth or eleventh grade, two were high school or GED graduates, and four had had some post-high school training. This was a multilevel class as far as skills; some students needed help with basic fraction and decimal concepts while others needed help with the basic algebra and trigonometry important to their jobs.

READING/WRITING CLASS PROFILES

The Baxter Healthcare class had twelve students - eleven female and one male. This was a multilevel class with varying educational needs and job duties. The students' educational experience varied from nine to twelve years. Job duties of the students included production line workers, quality control workers, a documentation clerk, and a team leader. Some students used little reading/writing in their daily work while others were involved in daily reading of company materials, writing memos and letters, and documentation. Two students were involved with teams in rewriting company related materials. Most students were long-term Baxter employees with four to eighteen years of experience with the company.

The Reliable Power class had a total of eleven students - all males. Two students were related - a father and son. Students were well-acquainted with each other and with their respective job responsibilities. Five students were black non-Hispanics and one was white. Schooling varied from eighth grade completion to some basic skills classes at the community college level. Ages varied from 23 years to 55 years with an average age of 39 years. The shortest length of employment with Reliable Power was two years and the longest was twenty-five years. The average length of employment was twelve years. Abilities of the students varied with strengths and weaknesses becoming apparent as the class developed. Most appeared to be comfortable with verbalizing. Workers came from different departments, and levels of responsibilities varied from assembly line operation to more highly technical operations.

SCOPE OF THE COMPETENCY-BASED CURRICULUM

INTRODUCTION

This curriculum is competency-based. A competency is a demonstrated ability to perform a task successfully. Each competency requires its own set of basic skills which are needed to perform the task. A workplace competency is the demonstrated ability to successfully perform a task on the job. The workplace competency is written with a verb which indicates demonstrated ability. The evaluation of the competency is to perform it.

The instructor guides the learner towards the performance of the competency through the acquisition of the basic skills. Upon completion of a pretest for a competency, a student either demonstrates the competency, is partially successful, or is unable to perform any portion of the competency. Demonstrated competencies would not be taught. The instructor determines the course of action needed to enhance the ability of the student to perform the competency. This allows learning to take place through individual development; learners are on their own continuum.

Though each competency required its own set of skills, it became apparent that the basic skills did not belong to one competency only. There was a definite pattern which developed; the basic skills corresponded directly to one or more of the competencies. This became the scope of the curriculum. As the competencies with their core skills formed the scope, instructors identified the knowledge which would transfer to real life situations. The transfer of the core skills to work situations is the ultimate goal for the workplace. The transference of the core skills to other facets of the learner's life as well as the workplace becomes the key to lifelong learning.

Unlike traditional academic curricula, workplace curricula are not sequential. This curriculum targeted a working population of adults who had an array of individual skills which pulled together uniquely for each worker. The teachers facilitated the learning of each individual based upon those skills already in place.

The scope of this curriculum was based upon the needs of the six workplace sites in this project and the competencies that were developed specifically for the six classes that were taught. Each content area has a chart of basic skills organized under the various competencies for that area.

ABBOTT ESL WORKPLACE COMPETENCIES

- READ AND FOLLOW A RECIPE.
- INCREASE VOLUME OF PERSONAL RECIPES FOR BUSINESS USE.
- GREET CUSTOMERS AND ASK AND ANSWER THEIR QUESTIONS APPROPRIATELY.
- REPORT AN ACCIDENT ORALLY.

MACLEAN MOLDED ESL WORKPLACE COMPETENCIES

- DESCRIBE PRODUCTS AND MATERIALS ORALLY.
- GIVE APPROPRIATE REASON FOR ABSENCE OR TARDINESS BEFORE WORK BEGINS.
- STATE CLEARLY THAT SOMETHING HAS OR HAS NOT BEEN UNDERSTOOD.
- SUMMARIZE OR REPEAT ORAL INSTRUCTIONS.
- ASK AND ANSWER SIMPLE APPROPRIATE PERSONAL QUESTIONS ABOUT BACKGROUND.
- FOLLOW INSTRUCTIONS TO CARRY OUT A SIMPLE TASK.
- WRITE PERSONAL INFORMATION ON A BASIC FORM.

COMBINED ESL WORKPLACE COMPETENCIES

1. READ AND FOLLOW A RECIPE.
2. INCREASE VOLUME OF PERSONAL RECIPES FOR BUSINESS USE.
3. GREET CUSTOMERS AND ASK AND ANSWER THEIR QUESTIONS APPROPRIATELY.
4. REPORT AN ACCIDENT ORALLY.
5. DESCRIBE PRODUCTS AND MATERIALS ORALLY.
6. GIVE APPROPRIATE REASON FOR ABSENCE OR TARDINESS BEFORE WORK BEGINS.
7. STATE CLEARLY THAT SOMETHING HAS OR HAS NOT BEEN UNDERSTOOD.
8. SUMMARIZE OR REPEAT ORAL INSTRUCTIONS.
9. ASK AND ANSWER SIMPLE APPROPRIATE PERSONAL QUESTIONS ABOUT BACKGROUND.
10. FOLLOW INSTRUCTIONS TO CARRY OUT A SIMPLE TASK.
11. WRITE PERSONAL INFORMATION ON A BASIC FORM.

ESL SCOPE

COMPETENCIES	1	2	3	4	5	6	7	8	9	10	11
LISTENING SKILLS											
Listen for Key Words/Details	X		X	X			X	X	X	X	
Listen for General Ideas	X		X	X			X	X	X	X	
ORAL SKILLS											
Give Personal Information				X			X		X		
Use Work-related Vocabulary	X		X	X	X	X	X	X	X	X	
Use Work-related Greetings			X			X			X		
Use Clarification Techniques	X		X		X	X	X	X			X
Use Verification Techniques	X		X			X	X	X			
Report Problems				X			X				
Correct Mistakes and Apologize	X		X								
Give Instructions				X		X		X			
Answer Telephone Appropriately						X			X		
Summarize				X				X			
PRONUNCIATION											
Pronounce English Alphabet					X						X
Spell Name Aloud						X					
Pronounce Work-related Vocabulary	X		X		X	X	X	X	X	X	X

COMPETENCIES	1	2	3	4	5	6	7	8	9	10	11
PRONUNCIATION (Con't)											
Pronounce Personal Information Vocabulary						X			X		
Pronounce Money Amounts			X								
Pronounce Fractions	X										
Differentiate Between English Vowel Sounds			X								
READING SKILLS											
Read English Alphabet											X
Decode Work-related Vocabulary Automatically	X	X	X	X	X					X	X
Decode Days of the Week Automatically						X					
Decode Personal Pronouns Automatically						X					
Read Abbreviations	X	X		X							X
Read Amounts of Money			X								
Read Phrases and Sentences	X	X	X			X					
Scan	X	X		X							X
Categorize	X				X						
Sequence							X	X		X	
Read and Interpret a Graph				X							
WRITING SKILLS											
Write Numbers	X	X									X
Write English Alphabet											X

COMPETENCIES	1	2	3	4	5	6	7	8	9	10	11
Penmanship											X
Write Fractions	X	X									
Write Work-related Vocabulary	X	X	X		X						X
Write Abbreviations	X	X									X
Complete Forms											X
Write Sentences			X								
Write a Recipe	X	X									
GRAMMAR											
Use Subject Pronouns				X		X		X	X	X	
Use Imperatives						X				X	
Use "To Be" Verbs in Sentences and Questions	X		X	X							
Form "WH" Questions	X		X	X		X			X		
Form "Yes/No" Questions & "Either/Or" Questions	X		X	X			X		X		
Use Adjectives				X					X		
Use Modals			X								
Use Past Tense			X	X							
Use Irregular Verbs	X		X	X							
Use Prepositions				X				X	X	X	
Use Adverbs of Frequency						X				X	

COMPETENCIES	1	2	3	4	5	6	7	8	9	10	11
MATH SKILLS											
Read Number Names	X		X								
Use Mathematical Operations		X									
a. Addition		X									
b. Multiplication		X									
Use Fractions	X										

MACLEAN FOGG MATH WORKPLACE COMPETENCIES

- CALCULATE NET PAY FOR A SPECIFIED PERIOD.
- GIVEN 3-5 SAMPLE MEASUREMENTS ON A COMPANY DESIGNATED PROCESS CONTROL CHART, COMPUTE THE AVERAGE, RANGE, AND UPPER AND LOWER LIMITS.
- READ AND INTERPRET COMPANY CHARTS AND GRAPHS.
- MEASURE A GIVEN LENGTH OR OBJECT IN STANDARD AND/OR METRIC MEASURE. DETERMINE IF THE MEASUREMENT LIES WITHIN A GIVEN RANGE.
- IDENTIFY AND APPLY GEOMETRIC PROPERTIES AND RELATIONSHIPS TO CONCRETE WORK SITUATIONS.
- SOLVE AND EVALUATE ALGEBRAIC EQUATIONS IN ORDER TO FIND UNKNOWN DIMENSIONS ON A COMPANY BLUEPRINT AND/OR DIAGRAM.

METALEX MATH WORKPLACE COMPETENCIES

- PLOT AVERAGES ON A COMPANY DESIGNATED PROCESS CONTROL CHART AND COMPUTE THE RANGE AND UPPER AND LOWER LIMITS.
- USE A FOUR-FUNCTION CALCULATOR TO CALCULATE MACHINE DOWN TIME.
- DETERMINE THE CORRECT WEIGHT PER SQUARE FOOT OF A PRODUCT.
- MEASURE A PRODUCT AND DETERMINE IF THE MEASUREMENT LIES WITHIN A GIVEN RANGE.
- READ AND INTERPRET COMPANY CHARTS AND GRAPHS.
- DETERMINE IF THE WEIGHT PER SQUARE FOOT OF A PRODUCT FALLS WITHIN A SPECIFIED RANGE, BOTH IN TERMS OF POUNDS AND PERCENTAGE.

COMBINED GENERAL MATH WORKPLACE COMPETENCIES

1. CALCULATE NET PAY FOR A SPECIFIED PERIOD.
2. PLOT AVERAGES AND COMPUTE THE RANGE AND UPPER AND LOWER LIMITS ON A COMPANY-DESIGNATED PROCESS CONTROL CHART.
3. READ AND INTERPRET COMPANY CHARTS AND GRAPHS.
4. MEASURE A GIVEN LENGTH OR OBJECT IN STANDARD AND/OR METRIC MEASURE. DETERMINE IF THE MEASUREMENT LIES WITHIN A GIVEN RANGE.
5. IDENTIFY AND APPLY GEOMETRIC PROPERTIES AND RELATIONSHIPS TO CONCRETE WORK SITUATIONS.
6. SOLVE AND EVALUATE ALGEBRAIC EQUATIONS IN ORDER TO FIND UNKNOWN DIMENSIONS ON A COMPANY BLUEPRINT AND/OR DIAGRAM.
7. USE A FOUR-FUNCTION CALCULATOR TO CALCULATE MACHINE DOWN TIME.
8. DETERMINE THE CORRECT WEIGHT PER SQUARE FOOT OF A PRODUCT.
9. MEASURE A PRODUCT AND DETERMINE IF THE MEASUREMENT LIES WITHIN A GIVEN RANGE.
10. DETERMINE IF THE WEIGHT PER SQUARE FOOT OF A PRODUCT FALLS WITHIN A SPECIFIED RANGE, BOTH IN TERMS OF POUNDS AND PERCENTAGE.

MATH SCOPE

COMPETENCIES	1	2	3	4	5	6	7	8	9	10
WHOLE NUMBERS										
Determine Place Values		X								
Add, Subtract, Multiply, and Divide	X				X	X	X			
DECIMALS										
Determine Place Values		X		X					X	X
Order Decimals		X		X					X	X
Round Off Decimals							X			X
Convert Decimals to Fractions				X					X	
Add	X	X		X		X	X		X	X
Subtract	X	X		X		X			X	X
Multiply	X	X		X		X	X	X		
Divide	X	X		X		X	X	X		
FRACTIONS										
Convert Clock Minutes to Fractional Equivalents							X			
Convert Fractions to Decimals				X			X	X	X	
Order Fractions				X					X	

COMPETENCIES	1	2	3	4	5	6	7	8	9	10
PROPORTIONS										
Set up Ratios							X			
Set up Proportions			X		X			X		
Solve Proportions					X			X		
Calculate Percents										X
GRAPHS										
Read Points on Horizontal and Vertical Axes			X			X				
Plot Points		X	X			X				
Scan for Information			X							
Compare Graphic Information			X							
MEASUREMENT										
Convert Square Inches to Square Feet								X		
Read Fractional Measurements on a Measuring Device				X				X	X	
Read Decimal Measurements on a Measuring Device				X					X	
Recognize U.S. and Metric Measurements				X						
Convert U.S. Measurements to Metric				X					X	
Convert Metric Measurements to U.S.				X					X	

COMPETENCIES	1	2	3	4	5	6	7	8	9	10
GEOMETRY										
Identify and Measure Angles					X					
Calculate Angle Complements and Supplements					X					
Identify Areas and Perimeters of Plane Figures								X		
Calculate Areas and Perimeters of Plane Figures					X			X		
ALGEBRA										
Add, Subtract, Multiply, and Divide Signed Numbers						X		X		
Calculate Powers and Roots						X				
Solve Equations						X		X		
Graph Linear Equations						X				
PROBLEM SOLVING										
Apply Problem Solving Strategies		X	X				X	X	X	X
CALCULATOR USE										
Perform Basic Math Operations							X			

BAXTER HEALTHCARE READING/WRITING WORKPLACE COMPETENCIES

- READ AND INTERPRET COMPANY-RELATED MATERIALS.
- DEMONSTRATE THE USE OF VOCABULARY STRATEGIES TO ASSIST IN THE READING OF COMPANY-RELATED MATERIALS.
- WRITE A CLEARLY-STATED AND WELL-ORGANIZED MEMO.
- LIST AND EVALUATE POSSIBLE SOLUTIONS TO A WORKPLACE PROBLEM.
- USE A LEARNING LOG TO TRACK CHANGES IN ATTITUDE TOWARD SELF, CLASS, AND JOB.

RELIABLE POWER READING/WRITING COMPETENCIES

- CONSTRUCT MEANING AND SUMMARIZE KEY CONCEPTS IN COMPANY-RELATED MATERIALS.
- FOLLOW ORAL INSTRUCTIONS TO COMPLETE A WORK-RELATED TASK.
- USE A VARIETY OF VOCABULARY STRATEGIES TO READ AND PARAPHRASE COMPANY-RELATED MATERIALS.
- WRITE A WORK-RELATED NOTE THAT COMMUNICATES IDEAS IN A LOGICAL ORDER.

COMBINED READING/WRITING WORKPLACE COMPETENCIES

1. READ AND INTERPRET COMPANY-RELATED MATERIALS.
2. DEMONSTRATE THE USE OF VOCABULARY STRATEGIES TO ASSIST IN THE READING OF COMPANY-RELATED MATERIALS.
3. WRITE A CLEARLY-STATED AND WELL-ORGANIZED MEMO.
4. LIST AND EVALUATE POSSIBLE SOLUTIONS TO A WORKPLACE PROBLEM.
5. USE A LEARNING LOG TO TRACK CHANGES IN ATTITUDE TOWARD SELF, CLASS, AND JOB.
6. CONSTRUCT MEANING AND SUMMARIZE KEY CONCEPTS IN COMPANY-RELATED MATERIALS.
7. FOLLOW ORAL INSTRUCTIONS TO COMPLETE A WORK-RELATED TASK.
8. USE A VARIETY OF VOCABULARY STRATEGIES TO READ AND PARAPHRASE COMPANY-RELATED MATERIAL.
9. WRITE A WORK-RELATED NOTE THAT COMMUNICATES IDEAS IN A LOGICAL ORDER.

READING/WRITING SCOPE

COMPETENCIES	1	2	3	4	5	6	7	8	9
READING									
Identify the Purpose of Reading	X				X	X	X		
Read for Literal Comprehension	X	X	X	X	X	X			
Read for Inferential Comprehension	X	X		X	X	X			
Identify the Topic						X			
Recognize the Main Idea	X		X	X		X			
State the Main Idea	X		X	X		X			
Identify Factual Details	X		X			X			
Paraphrase						X	X	X	X
Summarize	X			X	X	X	X	X	X
Use Background Knowledge	X	X	X	X	X	X		X	X
Use Context Clues	X	X				X	X	X	
Predict/Confirm	X	X		X		X	X	X	X
Compare/Contrast		X			X	X	X	X	X
Cause/Effect						X		X	X
Draw Conclusions	X				X	X	X		X
Skim for General Information	X	X	X	X	X				
Scan for Specific Information	X		X			X			
Sequence Ideas	X				X	X	X	X	X
Access Heading and Subheadings	X		X			X			

COMPETENCIES	1	2	3	4	5	6	7	8	9
READING (Con't)						X		X	X
Access Reference Materials									
Read Numbers	X		X						X
Read Dates	X		X						X
Read Times	X		X						X
Read and Understand Technical and Non-Technical Vocabulary	X	X	X			X	X	X	X
WRITING									
Write Phrases	X		X	X	X				X
Write Sentences	X		X	X	X				X
Write Paragraphs	X		X	X	X				X
Write General Impressions				X	X				
Write Numbers			X						X
Write Dates			X						X
Write Times			X						X
Write Technical Words			X						X
Identify Purpose for Writing	X		X		X				X
Sequence Information	X		X					X	X
Select Relevant Details	X		X						X
Record Essential Information	X		X	X	X	X			X
Summarize Information	X		X	X	X				X
Use Concise Language			X					X	X

COMPETENCIES	1	2	3	4	5	6	7	8	9
WRITING (Cont'd.)									
Use Non-Biased Language			X						
Use Correct Punctuation			X						X
Use Correct Capitalization			X						X
Proofread for Errors			X						X
Use Proper Format			X						X
LISTENING/SPEAKING									
Verbally Summarize				X		X	X	X	X
Identify Key Words						X	X	X	X
Ask Questions for Clarification				X			X	X	X
Distinguish Between Relevant and Irrelevant Information				X			X	X	X
Address Key Points							X		X
Use Transition/Key Words						X	X	X	X
Differentiate Between Types of Listening							X		
Follow Directions Appropriately							X		
Give Directions Effectively							X		
VOCABULARY									
Identify Prefixes						X		X	
Identify Usage of Prefixes						X		X	
Identify Suffixes						X		X	

COMPETENCIES	1	2	3	4	5	6	7	8	9
VOCABULARY (cont'd.)									
Identify Usage of Suffixes						X		X	
Identify Root Words						X		X	
Recognize and Use Root Words						X		X	
Recognize Synonyms		X				X		X	X
Recognize Antonyms		X				X		X	X
Alphabetize								X	
Use Dictionary/Thesaurus		X				X		X	X
Understand Multiple Meanings		X						X	
Identify Words as Predictors of Ideas								X	

ASSESSMENT AND EVALUATION

This curriculum had as one of its goals, ***to provide ongoing evaluation of the instructional effectiveness of all aspects of the program***. To pursue its goal, project personnel needed a common understanding of the two terms. Through the guidance of the consultants, it was agreed that **assessment** would be **the collection of data and information** while **evaluation** would be **the interpretation of such data**. It became necessary to establish the means of gathering information, the criteria to form judgments, and the actual documentation process. An effective, documented assessment and evaluation process developed.

This curriculum was assessed and evaluated on a continual basis. At the onset, the needs assessment provided the background for the development of the competencies which, in turn, formed the curricula. The various members of the program, including the industrial partners, were also used to help measure the curriculum's effectiveness. Each individual was a resource. The instructors observed each other and discussed instructional techniques and alternatives. Most importantly, continual input from the students was documented to allow for individualized instruction and future planning. There was a flow of information which was continually being analyzed; this loop-effect sustained the ongoing evaluation of the program. It allowed for immediate changes and substantiated the progress of all areas. The following sections define the assessment and evaluation process for each segment of the program.

NEEDS ASSESSMENT

To identify the needs of the organizations, a literacy audit was done at each site. The process of gathering information was completed through interview forms and surveys. These forms and surveys asked open-ended questions of the human resource personnel, managers and supervisors, and prospective students. In addition to the interviews, a tour of each facility captured the activity of each site and a feeling of the site's work culture. It opened the door to the materials used in various departments and on-site bulletin boards as well as company correspondence. The in-house coordinator became the key contact person for the curriculum developers/instructors.

Information was then analyzed and each team discussed and shared the perceived and stated needs of each site. A list of basic skills was developed from the targeted needs. The competencies were written at this stage.

DEVELOPMENT OF COMPETENCIES

As the competencies were written and finalized, each team kept in touch with their sites. The basic skills were listed under each competency. If possible, the outcome and workplace focus were directly stated in the competency. If it was not possible to place the outcome and workplace focus in the competency, the two were stated on an outline sheet for future reference.

A list of competencies with their core skills were submitted to each work site for review. The workplace focus and outcomes were discussed. This step was crucial for both the educational providers and the industrial partners to feel that the program of instruction would be effective. If changes needed to occur, it could be done prior to the teaching of the course.

CUSTOMIZED TESTS

Instructors then used the written competencies with the stated workplace focus and outcomes to develop the pre- and posttests. These tests were to be administered before the actual teaching of the competency and after instruction had taken place. Competency Checklists (see appendix) were used to document each student's level of demonstration. The pretest date was marked in the appropriate column indicating the level of demonstration, and a second date for the posttest was also documented to show the level of progress after instruction.

Criteria were developed to measure the ability level of each student's performance on the testing. These criteria helped everyone to understand what was expected. They included a quantitative scale to correlate with the qualitative scale of the Competency Checklist. For example, the reading/writing team had used a six-point process writing scoring guide to measure the performance of writing samples from the students. Each team member "graded" every writing sample from a reading/writing class. This grading procedure validated the consistency of how a writing sample could be scored.

LESSON PLANNING

The lesson plans the instructors used in their classrooms became multiple sources of information. Each plan provided an outline of instruction; it stated the competency or competencies covered along with the core skills. Lesson plans provided information on the instructional methods and techniques and the materials used. At the end of each session, teachers reflected on their teaching effectiveness and wrote a brief summary.

The lesson plan format was used as a tool after the lesson was taught. It documented what was working and not working in the classroom, and its format provided information to be analyzed and evaluated by the teacher. As a result, changes occurred naturally as the curriculum developed.

CURRICULUM

The curriculum was a direct result of all that had taken place. It documented the planning and teaching and outlined the program of instruction. The Course Outlines section clearly defines what took place in each class.

INSTRUCTORS, SUPERVISORS, AND STUDENTS

As each instructor reflected on the teaching which occurred at the work sites and determined the adjustments needed for future lessons, team members also helped analyze and clarify an instructor's thoughts and procedures. Through discussions, the instructors were able to modify their strategies and focus on individual students. Team members visited the classes for observations and submitted written reports. The teachers on site would often ask for the observers to target a specific area of concern to confirm their own intuitions.

Supervisors were contacted, by the instructors as needed. At times, students brought materials from their work stations to the class. It became necessary to clarify the use of the materials and develop a relationship between the skills being taught and the actual work material. In some cases, supervisors were also attending advisory meetings and providing insight to the process. At the end of each session, supervisors filled out surveys on each of their employees who attended the classes. This information provided feedback to the educational provider.

The students were the key factors of the entire curriculum. In addition to the initial interviews during the needs assessment and the pre- and posttests for each competency, the students' input was very important. The instructors were able to facilitate learning through the use of surveys, journals, learning logs, and exit cards. The students' own thoughts were used as a basis to judge what was actually happening in the classroom. The responses caused teachers to question further how to be even more effective and also confirmed the effectiveness of instruction. For example, in an ESL class it was necessary for the teacher to ask verbally the exit questions and record the students' responses on her own. As each session continued, students were asked to fill out a midterm survey to be reviewed by the teams. The students themselves were able to rate their own perception of their level of understanding. Anecdotal records kept by the teachers also assisted in the evaluation of "how things are going". Each student's progress was documented and end-of-class surveys were given to finalize the class.

PROGRAM

Many factors influenced the development of the project. Instructors were asked to complete a survey which asked for input regarding the effectiveness of the project personnel, the consultants, the ordering system for supplies and books, the facilities at the sites, and the teams as resources. The results were used to make the appropriate accommodations. Each team submitted a weekly update in the form of a memo to the project director; these served as avenues to address concerns and document progress. Weekly meetings were held to discuss issues and share ideas; these were attended by the teachers, project director, and at times, the consultants. The industrial partners, as well as interested parties, were invited to a presentation at the college highlighting the outcomes of the process. Teachers wrote final reports on their classes and wrote their closing thoughts on the entire project for the project director. The entire process required all parties to actively participate.

The national evaluator also influenced the progress of the program. Through large and small group discussions with the instructors, the evaluator assessed how the program was meeting its commitment to the grant. The evaluator reviewed materials, visited classes at the work sites, and talked to representatives of the industrial partners. The evaluator targeted strengths and weaknesses and offered sound suggestions to achieve the stated outcomes. For example, a direct result was the use of project instructors at work sites not included within the project yet funded by the grant.

This entire section documents the processes defined to accomplish the intended objectives of assessment and evaluation for this program.

INSTRUCTIONAL TECHNIQUES AND STRATEGIES

As a new concept is taught, teachers develop background knowledge to sort through prior experiences and form a solid knowledge base. The schema can be established when teachers are sensitive to each individual's life experience. If a lack of understanding exists, it becomes imperative for the learners to experience sound learning situations, i.e. the techniques and strategies.

The techniques and strategies are relevant to the teacher and the learners. They provide teachers with the needed opportunities to model and develop cognitive awareness of the learning process, and also provide students with adaptable procedures to enhance their understanding of their own learning. As students develop an awareness of how they learn and understand the ways in which they can acquire new knowledge, they become self-directed learners. Metacognition becomes the link between learners and their capabilities to learn or process new knowledge. Metacognitive awareness is learners understanding of what needs to be done to process new information. This curriculum provides numerous instructional techniques and strategies. The instructors continually "tap" into their students; the students, as resources, provide further understanding of how they learn best. As a result, an optimal level of instruction takes place.

The workplace provides a natural setting for co-workers to share learning experiences. Since the classes are multilevel, the workers are able to connect their job and learning experiences to actual departments at their companies. These connections provide an awareness of operations occurring outside of one's department. As a result, collaborative learning experiences develop naturally. Co-workers are more willing to discuss and explain their roles within their company.

The following instructional techniques and strategies are implemented in this curriculum. The Bibliography contains the references used in this section.

ANTICIPATION GUIDES (Readence, Bean, and Baldwin)

Anticipation guides prepare students for reading by asking them to react to a series of statements (prepared in advance by the teacher) which are related to the material they are about to read. In reacting to these statements, students anticipate or predict what the content will be. This activity is designed to help students focus on key points, to connect what they already know to information in the text, and to integrate discussion with reading.

(As referenced in *Reading Strategies and Practices.)*

BRAINSTORMING

Brainstorming is a strategy which activates background and gets students thinking before they read or write. Brainstorming also allows instructors to pinpoint areas of misinformation and correct misconceptions. Through brainstorming, readers and writers can generate ideas without pressure of producing. The ideas generated through brainstorming can then be organized into a piece of writing or a plan for action. During a brainstorming session, students should be encouraged to share their ideas with each other without criticism. Welcome the outlandish. New ideas are born when there is freedom to explore. Allow sufficient time for students to generate a number of ideas. Brainstorming can be done individually, in small groups, or with the whole class.

CLUSTERING

Clustering is similar to the activity of mapping. Like mapping, clustering adds a visual dimension to the process of organizing ideas. Clustering helps students to separate their ideas into categories and improves organization in their thoughts, speech, and writing.

To begin clustering, write a topic on the chalkboard or on a transparency. Draw a circle around the topic. Draw lines out from the circle, and write the first key idea that the students suggest at the end of one line . For example, if "spring" brings to mind gardening then write "gardening" at the end of one line. Next, write any words that the key word "gardening" brings to mind in a cluster around the key word. Have the class brainstorm ideas. These might be flowers, vegetables, weather conditions, etc. When students think of a new key word or topic, draw a new line from the center circle and write the new key word at the end of the line. Continue this process of free association for 5 to 10 minutes. At the end of this time, have students evaluate the ideas and decide which one they would like to discuss or write about.

COMPUTER ASSISTED INSTRUCTION

The computer can be a multi-faceted tool in the process of workplace instruction. First, the use of software programs in specific areas of instruction can provide students with opportunities to do quick, efficient, interactive learning. Especially in multilevel classrooms, students can use software programs individually or in small groups to learn new things or to back up their classroom instruction with another form of drill or practice. The immediate validation of correct or incorrect answers in software drills is a unique help to some students. Software instruction and practice in graphing is especially helpful to workplace students as they see points and lines and bars being placed on a grid.

Secondly, computer assisted instruction is a technique that has many secondary benefits to the workplace student. Computers are now a part of nearly every department in a company. Since the computer can be used as a word processor, as a calculator, or as a means to display or organize data, a basic familiarity with the computer gives students connections between their instruction and other areas of their lives.

COOPERATIVE LEARNING

Cooperative learning allows small groups of people to reach a common goal set by the instructor. The teacher divides the class into groups of four. Everyone is given a particular job to do and must do it to achieve the goal. Such jobs can be secretary, coach, runner, taskmaster, etc. This method teaches teamwork and respect for other ideas. Students learn to listen to each other and to clarify their ideas. They are encouraged to help each other and share their ides. They develop self-confidence, trust, and leadership skills. Cooperative learning activities help the students to retain what they have learned without memorizing. They learn to think about different ways of expressing themselves. The students have more interaction and greater opportunity to speak than in a conventional class. The teacher facilitates the process by monitoring each group, giving feedback, and guiding the group with as little interference as possible.

COOPERATIVE LEARNING ACTIVITIES:

1. Color-coded Co-op Cards: Students memorize facts using a flashcard game which is structured so that there is a maximum probability of success at each step. One moves from short-term to long-term memory, scoring on improvement. Pretest what you wish to teach, for example, tool vocabulary. Students make their own flashcards of the words they missed with cues on the opposite side of the words. Students then work in pairs with one being the tutor and the other being the tutee. The tutee gives his cards to the tutor who holds up the cue and then turns the card around saying the word. Then the tutor turns the card around with the cue towards the tutee and the tutee gives the word. If the answer is right the tutor praises his student and gives him the card. If the answer is incorrect the tutor may give hints and the card is placed on the bottom of the pile. Once the tutee wins all of his cards, the roles switch. During the second round, only the cue is shown and not the word.

2. Corners: Each student moves to a corner of the room representing a teacher determined alternative. Students discuss within their corners and then listen to and paraphrase ideas from other corners.

3. Roundrobin and Roundtable: Roundrobin is an oral exercise in which students take turns contributing answers or reading something they have written. Each participant gets a turn so one person does not dominate the exercise. Roundtable is the written version. Students may be asked a question with several possible answers. Students then make a list on one piece of paper, each writing one answer and then passing the paper to the next person.

4. Think/Pair/Share: Students listen while the instructor poses a question. Then, they are given a chance to think of a response. Students pair with one another to share their thoughts. Then the pairs share their ideas with the original group.

DIRECTED READING-THINKING ACTIVITY (Stauffer)

Directed reading-thinking activity (DRTA) is used to help students focus on a written passage. Students are taught to react to the title and any visuals in order to make predictions about what they will read. As they begin to read the passage, they may change their predictions as more material is read. Specific instructions are given for difficult vocabulary such as reading to the end of the sentence, using clues, sounding out the word, or just asking. During and after reading, the students are asked to verify their predictions by citing actual text. DRTA connects the reader to the writer of the passage.

(As referenced in *Reading Strategies and Practices.*)

FREEWRITING

Workplace students often approach writing with a great deal of discomfort and anxiety. One way to reduce their writing anxiety is to give them uncorrected writing practice called freewriting. Initial freewriting should be kept to no longer than ten minutes. Students may write about anything they wish, or they may be assigned a topic that is familiar to everyone such as foods they like or dislike, the current weather, or something happening that day in the classroom or in the workplace. Students write without stopping. If they cannot think of anything to put on the paper initially, the teacher may suggest they write "I can't think of what to write" over and over until their own thoughts are formulated. The goal of freewriting is to reduce the fear of putting words on paper. Freewriting may then be shared with the instructor, with a partner, in small groups, or with the entire class. The important thing is to focus only on the **content** of the writing, and not at this point on the **mechanics** of writing.

GAMES

There are numerous purposes for using games in the classroom. Games, either teacher-made or commercially produced, can reinforce skills being taught and can provide excellent drill and review on past classwork. They can also help the teacher evaluate student progress in a non-threatening way. Games can develop communication skills such as listening and speaking and can provide practice in following instructions. Games can be especially effective in math classes in helping students to discern patterns and use a combination of skills they have learned. Students can often practice team building through games and enjoy transferring skills from games in class to other areas of their lives. In ESL classes effective games to use are Bingo, Go Fish, Concentration, Jeopardy, Simon Says, Lotto, and Telephone. Math teachers could use Bingo, Dominoes, and Rummi Kub. Math students can also benefit from teacher-made card games such as a trading card game in which each player receives several cards with decimal and/or fraction values on them. Students trade cards to be the first to reach a combined specified value. Another math game is a place value card game in which students combine cards to achieve the highest or lowest valued decimal.

GRAPHIC ORGANIZERS (Barron)

The Graphic Organizer is designed to do three things. It should provide a systematic way to present the technical vocabulary of a chapter in a text so that the students are able to learn it with little difficulty. It should give the students a structure that shows the relationship of concepts and content vocabulary. It should also clarify the goals of the teacher.

The instructor presents a picture or diagram of the vocabulary in a chapter. Then there is a discussion with the students on how these words relate to one another. The new information should also be linked with previously acquired information. This way the students do not receive the impression that each new cell of information is isolated or unconnected to previously learned information from the content text. At this point, the students should not be expected to know all the terms and the relationships between them. They are using the words and working out the relationships among them so that some type of structure is in place to make the more complicated learning easier.

(As referenced in *Reading Strategies and Practices.*)

JOURNAL WRITING

A journal is a record of the students' thoughts and experiences. Through the use of a journal, students and teachers can communicate with each other regularly in a written conversation. Students write as much as they choose, and the teacher then writes comments, reactions, or questions for each entry. Teachers' responses should contain no revisions or evaluations but should act as an encouragement to further expression and learning. Student journal entries can also include students' reactions to learning experiences, thus helping the students and teachers see both positive and negative aspects of the educational program.

K-W-L (D. Ogle)

K-W-L is a study strategy in which students think about what they already know about a topic and predict information they expect to learn. K-W-L helps students focus on important facts and details related to content topics. K-W-L can be used by instructors to gauge how much prior knowledge students have of a topic.

Each student has a sheet of paper with three columns. The first is labeled **K** (What I Already Know), the second, **W** (What I Want/Need to Know), and the third, **L** (What I Have Learned). Students brainstorm together everything they know about a certain topic and then list these responses in the **K** column by major topics and supporting topics. In the **W** column, students formulate hypotheses about what they will be reading or studying and formulate questions as to what they want to know. After the instructional time, students fill in the **L** column with new information learned and correct any misconceptions. This technique is most often used in reading instruction, but it can also be utilized when presenting new topics in math or ESL classes.

LANGUAGE EXPERIENCE APPROACH

The Language Experience Approach (LEA) uses the students' own spoken English as their first text for reading. Because listening and speaking skills should develop before reading and writing skills, this approach emphasizes oral conversation and development of a story before it is read by the students. The students' exact words, despite problems of style or grammar, become their first reading matter. In this way, they can make a direct connection between meaning and the written word. They will find the subject of the stories relevant and develop pride in producing their own work.

The first step in the LEA process is to engage the students in conversation about an activity, experience, or picture. The idea is to get the students talking so that they can develop a story or description using the full extent of the English they know. This is not a time for the instructor to teach a new lesson. The students' first stories may only be three or four sentences. That's fine. Ask them the basic WHAT, WHERE, WHEN, and WHO questions if they need prompting. Write down their words exactly.

The instructor reads the story aloud and the students listen to what their own words sound like while "reading" silently. If the students want to change or add anything, record that carefully.

You can use this test for several reading exercises such as underlining key words, circling all words that begin with a particular letter, cutting the story into parts and re-assembling it, or asking each other questions about the story.

Soon the students will have the story memorized. They will be able to successfully read it aloud on their own. Copying certain words or the whole story will be a meaningful exercise. Eventually, as the students' language skills improve, they might want to return to their earlier stories and correct them.

LEA builds on what the students know giving them a meaningful language experience. The students are given ownership of their writing with the instructor as a facilitator. It demonstrates the interrelationship between speaking, listening, reading, writing, and thinking. It teaches summarizing and expands easily into many different content areas.

(Taken from *Tutoring ESL: Handbook for Volunteers.*)

MAPPING

Concept mapping (also called semantic mapping) helps students recognize different types of organizational patterns typically used in content area materials. Mapping is a graphic representation of the relationships between major ideas and supporting details. This technique encourages students to use their background knowledge along with new information presented to form a visual picture of how individual pieces of information fit together.

Mapping can be used as an introduction to a new topic, as a vocabulary builder, or as a note-taking and study aid. To begin mapping, write the main topic in the center of the blackboard or on an overhead transparency. Circle the topic. Have the students identify supporting secondary ideas. Write these around the main topic with lines connecting the secondary ideas to the main topic. Identify supporting details for each secondary idea. Then arrange supporting details under the appropriate secondary idea in a logical fashion.

Instructors need to model the process of mapping when it is first introduced to students. The instructor should demonstrate, allowing students to do as much of the process as possible. As the students become more familiar with mapping, they will be able to do all the steps individually or in small groups.

MATH MANIPULATIVES

The instructor provides hands-on materials that can help the students develop a concrete basis for mathematical relationships. These materials can be anything that can be felt, counted, grouped, or measured to liken the mathematical classwork to the students' job tasks and personal lives. For workplace education, the best manipulatives are things the students use on their jobs, perhaps the actual products that a company makes. Measuring devices from the workplace such as rulers, calipers, and micrometers can be utilized. Fraction bars, blocks, and Cuisenaire rods can help the students see and feel decimals, fractions, and ratios. Workplace students can also benefit from either making or examining geometric models. Packages of colored candies such as M&M's are a helpful tool for teaching grouping, fractions, and percent. Many teacher-made devices such as clock faces and card games can assist students in connecting abstract mathematical ideas to things they face each day.

PROBLEM POSING (Friere, Auerbach, and Wallerstein)

Problem posing allows the students to bring their experiences and problems from work, home, and the community into the classroom. It allows them to develop viable alternative solutions to issues that concern them by using critical thinking skills involving inductive questioning. This questioning strategy consists of a five-step process based on a hierarchy from simple to complex. The teacher selects an issue after listening to and observing the students. The teacher starts with some type of code such as a picture, story, object, or dialogue to focus on the issue. By starting with the concrete questions of who, what, and where, the teacher leads the class through a series of steps to describe, define, and personalize the problem. By relating the problem to themselves, they can arrive at the cause of the problem. Next, they are analytically guided through the how and who of the issue so they can become aware of how it is an issue for others. Finally, they can create solutions for the problem and discover the consequences for each solution. The teacher is a facilitator for this method and should do a minimum of speaking. Guiding and clarification are his/her main concerns.

PROBLEM SOLVING

Instruction in the process of problem solving provides students with the opportunity to investigate possible solutions to authentic problems and to evaluate those solutions according to the students' value systems and consequences. In order to successfully list and evaluate options, students learn first to define the problem and arrive at a problem statement which identifies the obstacle that prevents them from achieving that outcome. Accurately defining the problem allows students to recognize and avoid common reactions to problems such as blame, denial, and avoidance. Next, students are trained to find the cause of the problem rather than to look at the symptoms. This requires careful investigation through asking open-ended questions. Brainstorming solutions to a problem, the next step, requires that students creatively list all possible solutions without judging or evaluating them. This is best accomplished in small groups. Finally, students learn to evaluate alternatives according to their belief systems and the consequences of choosing those alternatives. Training in the process of problem solving provides students with a strategy to take control of their reactions to authentic problems in their lives and to think through those problems before choosing viable solutions.

REQUEST (Manzo)

The ReQuest procedure encourages students to question, set purposes for reading, and become more actively involved in the reading process. This procedure can be used individually or in small groups. The teacher selects an appropriate reading passage and develops background knowledge for the selection by predicting based on the title, presenting key vocabulary and concepts, or other prereading techniques. After a joint silent reading of the first sentence, both students and the teacher close their books and the students ask the teacher questions. The teacher explains that it is unacceptable to answer "I don't know", and models extended responses to the questions. The teacher also reinforces appropriate questioning and clarified questions if necessary. After reading another sentence silently, the roles are exchanged and the teacher asks questions about the passage. The students and teacher continue reading and exchanging roles, asking questions until it is possible to predict the conclusion of the passage. They can then continue reading the passage silently. This strategy allows the teacher to model effective questioning and reading behaviors and to encourage students to extend thinking and active reading.

STUDENT GENERATED DIALOGUES AND ROLE PLAYS

Students enjoy creating and performing their own dialogues for situations that are relevant to the workplace or real life. This is a natural follow-up to a problem posing session because it gives the students practice in sequencing their thoughts and expressing them orally and in writing. They use relevant language and practice several skills they have learned. They can perform the dialogues for the class so the teacher can listen and diagnose errors. The dialogues can start as small structured exercises created by the teacher and then move on to student-created dialogues. From here they can go on to impromptu role play for similar situations. This process will lead to application in the real world where they have to "think on their feet". It provides them with strategies to deal with the outside world and the workplace successfully.

THINK-ALOUD (Davey)

Think-Aloud is intended to help students examine and develop reading behaviors and strategies. It is based on the premise that if students can observe a teacher modeling his/her own thoughts about a text, they will realize how and when to do the same. The teacher begins by selecting a passage that contains some contradictions, difficulties, or unknown words. The instructor reads the passage aloud with students following along silently and offers a number of Think-Alouds in the process. They may make predictions about the passage (*I think we will find out what caused this accident*), describe visual images (*I have a picture in my mind of this older character*), show how prior knowledge relates (*This was similar to the time when I was late to work*), verbalize confusing points (I am not sure how this fits in), or demonstrate fix-up strategies (*I need to re-read this*). After the modeling, the students work together with partners, taking turns reading and thinking aloud with short passages. Then the students practice independently with the use of checklists to monitor their progress. Finally, there is practice with class materials and content reading.

TOTAL PHYSICAL RESPONSE (Asher)

Total Physical Response (TPR) is a simple ESL technique that addresses the acquisition of oral and aural skills. It incorporates listening activities driven by the imperative verb form, i.e. Stand Up! Sit Down! Students respond to the commands without speaking. This provides a non-threatening learning environment to the students since they are not required to give individual verbal answers. It is a quick way for the teacher to check for comprehension. The commands can start off simply and gradually progress to more complex verb patterns. The method can even be used with verbs that express emotions. Eventually, the students advance to giving the commands to others in the class. Studies have shown that vocabulary learned by this method is retained at a higher rate than by conventionally used methods. Also, the transfer to oral reading and writing skills seems to be quicker than by conventional methods.

COURSE OUTLINES

INTRODUCTION

The course outlines for each of the six classes involved in the curriculum development project are on the following pages. In keeping with the approach taken in the scope section, all of the information in the outlines is organized around three lists of subject-area competencies: eleven ESL, ten math, and nine reading/writing. The outlines basically show how these competencies were addressed in the six classrooms. Each time a general competency is stated, a list of the basic skills it encompassed, a list of instructional activities used to address it, and a matching list of instructional materials appears underneath. (The numbers in columns 2 and 3 match the specific instructional activities with the materials used for them.) The instructional outcome expected appears at the bottom of these lists. The "workplace focus," which immediately follows each of the stated competencies, rewords the general competency making it specific to the particular classroom in which it was addressed.

In the case of the ESL and the reading/writing course outlines, the competencies appear in exactly the same sequence they do on the one-page lists which immediately precede the outlines. In the case of the math outlines, the fact that math competencies 2 and 3 were dealt with at both MacLean Fogg and Metalex causes a disruption in the numerical sequence in that section. The MacLean Fogg course outline includes math competencies 1 through 6. The Metalex outline also includes competencies 2 and 3 (but deals with them differently) and then continues with competencies 7 through 10.

COMBINED ESL WORKPLACE COMPETENCIES*

1. READ AND FOLLOW A RECIPE
2. INCREASE VOLUME OF PERSONAL RECIPES FOR BUSINESS USE
3. GREET CUSTOMERS AND ASK AND ANSWER THEIR QUESTIONS
4. REPORT AN ACCIDENT ORALLY
5. DESCRIBE PRODUCTS AND MATERIALS ORALLY
6. GIVE APPROPRIATE REASON FOR ABSENCE OR TARDINESS BEFORE WORK BEGINS
7. STATE CLEARLY THAT SOMETHING HAS OR HAS NOT BEEN UNDERSTOOD
8. SUMMARIZE OR REPEAT ORAL INSTRUCTIONS
9. ASK AND ANSWER SIMPLE APPROPRIATE PERSONAL QUESTIONS ABOUT BACKGROUND
10. FOLLOW INSTRUCTIONS TO CARRY OUT A SIMPLE TASK
11. WRITE PERSONAL INFORMATION ON A BASIC FORM

* In the Workplace Course outlines for ESL on the following pages, Abbott Laboratories addresses Competencies 1-4, MacLean Molded addresses Competencies 5-11.

WORKPLACE COURSE OUTLINE: ESL (ABBOTT LABORATORIES)

COMPETENCY: #1 Read and follow a recipe.

WORKPLACE FOCUS: Read and follow Abbott recipes.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING SKILLS Listen for key words/details. Listen for general ideas. **ORAL SKILLS** Use work-related vocabulary. Use clarification techniques. Use verification techniques. Correct mistakes and apologize. **PRONUNCIATION** Pronounce work-related vocabulary. Pronounce fractions. **READING SKILLS** Decode work-related vocabulary automatically. Read abbreviations. Read phrases and sentences. Scan. Categorize.	1. Measurement abbreviation "Bingo" 2. Pair dictation of recipes 3. Transformation drills 4. Matching words with definitions 5. "Go Fish" Game with fractions 6. Students dictate recipes to each other and check to see if they are understood 7. Pairwork: create and practice clarification and verification phrases, i.e. "Did you say 3/4 cup of sugar?" "That's 1 cup butter, right?" Verification: "You need 1/2 teaspoon baking powder, right?"	1. Teacher-made "Bingo" of measurement abbreviations 2. Realia/recipes 3. Teacher-made transformation drills with worksheet and board 4. Teacher-made meal match-up exercise 5. Teacher-made game 6. Realia/recipes 7. Teacher-made list given on board of clarification/verification techniques

Basic Skills	Instructional Activities	Instructional Materials
WRITING SKILLS Write numbers. Write fractions. Write work-related vocabulary.	8. Brainstorming for types of mistakes which service workers make and for apologies and solutions to problems which workers can offer	
Write abbreviations.	9. Pairwork: practice food service dialogues	9. Teacher-made food service dialogues
Write a recipe.	10. Brainstorming to identify kitchen vocabulary	
GRAMMAR Use "to be" verbs.	11. Charade game to practice kitchen verbs	11. *New Oxford Picture Dictionary,* pp. 30-31
Form "wh" questions. Form "yes/no" questions. Use irregular verbs.	12. Reading and pronounciation of kitchen vocabulary	12. *New Oxford Picture Dictionary,* pp. 30-31
MATH SKILLS Read number names. Use fractions.	13. Reading of recipes for abbreviations, fractions, kitchen verbs	13. List of standard measurement vocabulary commonly used as abbreviations in cooking
	14. Scanning recipes for verbs	14. Recipes
	15. Exercise to categorize food items	15. Teacher reference: "Meal Match-Up," *The Complete ESL/EFL Cooperative and Communicative Activity Book,* pp. 97-98
	16. "Go Fish" Game: practice reading fractions	16. Teacher-made game

Basic Skills	Instructional Activities	Instructional Materials
	17. Dictated list of whole numbers and fractions	17. Teacher-made list
	18. Pairwork: write a favorite recipe	18. Teacher reference: *Writing Workout,* p.36
	19. Identifying and writing names of kitchen equipment from a picture	19. Teacher-reference: *New Oxford Picture Dictionary,* p. 36
	20. Pairwork: group kitchen verbs according to categories	
	21. Identifying and writing verbs from pictures	21. Series of pictures demonstrating kitchen verbs
	22. Writing sentences using kitchen vocabulary	22. *New Oxford Picture Dictionary, Beginning Workbook,* pp. 39 & 41
	23. Organizing and writing a favorite recipe	23. Student-generated recipes
	24. Using kitchen equipment as subjects of sentences using "to be"	24. Teacher reference: *New Oxford Picture Dictionary,* p. 30
	25. Forming "yes/no" questions with "to be" verbs using word cards to show sentence sequence	25. Teacher-made word cards
	26. "Go Fish" Game for reading and asking for fraction cards	26. Teacher-made "Go Fish" Game
	27. Increasing recipes	27. Recipes

OUTCOMES:

Abbott employees able to read and follow Abbott kitchen recipes.

WORKPLACE COURSE OUTLINE:
ESL (ABBOTT LABORATORIES)

COMPETENCY: #2 Increase volume of personal recipes for business use.

WORKPLACE FOCUS: Increase volume of personal recipes for use in Abbott kitchens.

Basic Skills	Instructional Materials	Instructional Activities
READING SKILLS Decode work-related vocabulary automatically. Read abbreviations. Read phrases and sentences. Scan. WRITING SKILLS Write numbers. Write fractions. Write work-related vocabulary. Write abbreviations. Write a recipe. GRAMMAR Use "to be" verbs in sentences and questions. Form "wh" questions. Form "yes/no" questions and "either/ or questions. Use irregular verbs. MATH SKILLS Use math operations: a. addition b. multiplication	1. Reading recipes and enlarging them 2. Practice reading recipes 3. Scanning recipes for amounts to be changed 4. Writing and converting recipes 5. Drills to practice multiplying fractions (teacher reference)	1. Personal recipes 2. Personal recipes 3. Personal recipes 4. Personal recipes 5. Teacher reference: *Math-Mastery Series, Fractions, Part 2,* p. 18 Teacher-made work sheets

OUTCOME:

Abbott employees able to increase the volume of their personal recipes for use in the Abbott kitchens.

WORKPLACE COURSE OUTLINE:
ESL (ABBOTT LABORATORIES)

COMPETENCY: #3 Greet customers and ask and answer their questions appropriately.

WORKPLACE FOCUS: Greet customers and ask and answer their questions appropriately as per Abbott cafeteria policy.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING SKILLS Listen for key words/details.	1. Listening/ comprehension and clarification exercise	1. Tape: *May I Help You?,* pp. 8 & 9, 61-62
Listen for general ideas.	2. Listening for key words	2. Tape: *May I Help You?,* pp. 61-62
ORAL SKILLS Use work-related vocabulary.	3. Listening exercise for key words	3. *May I Help You?,* p.28
Use work-related greetings. Use clarification techniques.	4. Role playing of customer/ clerk interaction and clarification	4. *May I Help You?,* pp. 10, 19, 20, 21, 63
Use verification.	5. Pairwork: clarification matching exercise	5. *May I Help You?,* p. 11
PRONUNCIATION Pronunciation work-related vocabulary.	6. Pairwork: clarification dialogues	6. Teacher reference: *Day by Day,* p. 172
	7. Verification dialogues	7. *May I Help You?,* p. 15
Pronunciation money amounts.	8. Class discussion on correcting mistakes	8. *May I Help You?,* pp. 24-26
Differentiate between English vowel sounds.	9. Pairwork: clarification drill, "Did you say....?", "No, I said...."	9. *Pronunciation Pairs* (any list in the book can be used as a clarification exercise)

Basic Skills	Instructional Activities	Instructional Materials
READING SKILLS Decode work-related vocabulary automatically. Read amounts of money. Read phrases and sentences. **WRITING SKILLS** Write work-related vocabulary. Write sentences. **GRAMMAR** Use "to be" verb in sentences and questions. Form "wh" questions. Form "yes/no" questions. Use modals. Use past tense. Use irregular verbs. **MATH SKILLS** Read number names.	10. Small group skits focusing on "do" and "does"	10. Teacher reference: *Side By Side,* Book I, p. 83
	11. Interviews using "do" or "does" questions	11. Teacher reference: *Side By Side,* Book 1, p. 87
	12. Pairwork: dialogue exercise forming "wh" questions in present and past	12. Teacher reference: *Tell Me More,* pp. 123, 260-262
	13. Dialogue practice for "Would you like...?"	13. Teacher reference: *Side By Side,* Book 2, pp. 21-31
	14. Oral practice and role play on correcting mistakes	14. *May I Help You?,* pp. 66-69
	15. Drill and practice of past tense	15. *Pronunciation Pairs,* as (text), pp. 4-35
	16. Exercises reading numbers and amounts of money	16. *May I Help You?,* pp. 26-27
	17. Comprehension questions on greeting and helping customers	17. *May I Help You?,* pp. 6 & 7
	18. Scanning exercise on customer orders	18. *May I Help You?,* p. 27
	19. Scanning exercise for apologizing for mistakes	19. *May I Help You?,* p. 64
	20. Sequencing "do" and "does" questions (questions cut into sequencing strips)	20. *May I Help You?,* p. 9

84

Basic Skills	Instructional Activities	Instructional Materials
	21. Brainstorming to elicit vocabulary for service employees	21. *May I Help You?*, p.17
	22. Writing exercise to compare and contrast two employees' skills in dealing with customers	22. *May I Help You?*, p.17
	23. "Yes/no" question drill	23. Teacher-made worksheets
	24. Writing sentences using irregular verbs in past tense	24. Irregular verb list
	25. Transformation drill transforming present tense questions to past tense	25. *May I Help You?*, p. 8
	26. Drilling to differentiate between "Would you like...?"/"Do you like...?"	26. Teacher-made worksheets
	27. Forming "yes/no" questions, present and past tense	27. *Spot Drills,* Book 1, Ex. 12, 13
	28. Spelling bee/irregular verbs	28. Irregular verb list
	29. Scrambled "yes/no" sentences and questions	29. Teacher-made game
	30. "Roundrobin" memory game to practice irregular verbs: "My sister went to St. Louis and she broke an egg."	
	31. Drill sheets for irregular verbs	31. Teacher references: *Side By Side,* Book 1, pp. 122; *Side By Side,* Book 2, pp.10.
	32. Sequencing exercise, using word cards to create proper sentence	32. *May I Help You?*, pp. 9.

OUTCOMES:

Abbott cafeteria employees able to greet Abbott cafeteria customers and ask and answer customer questions as per Abbott cafeteria policy.

WORKPLACE COURSE OUTLINE:
ESL (ABBOTT LABORATORIES)

COMPETENCY: #4 Report an accident orally.

WORKPLACE FOCUS: Recognize potential accidents in Abbott kitchen and report them to supervisor.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING SKILLS Listen for key words.	1. Listening to article about kitchen safety	1. Teacher reference: *Skills for Success,* pp. 50 - 53
Listen for general ides.	2. Reading article aloud; students give general ideas in response to teacher's questions	2. Teacher reference: *Skills for Success,* pp. 50-53
ORAL SKILLS Give personal information.		
Use work-related vocabulary.	3. Practice in giving warnings to others	3. Teacher reference: *Side By Side,* Book 2, p. 30
Report problems.	4. Discussing dangers in the kitchen/Abbott's safety regulations	
Give instructions.		
Summarize.	5. Reading work-related safety articles	5. Teacher reference: *Skills for Success,* pp. 50-53
READING SKILLS Decode work-related vocabulary automatically.	6. Reading "Accidents in Workplace" graph	6. *Chicago Tribune,* May 1, 1994, p.1
Read abbreviations.		
Scan.		
Read and interpret a graph.		

Basic Skills	Instructional Activities	Instructional Materials
GRAMMAR Use subject pronouns. Use "to be" in sentences and questions. Form "wh" questions. Form "yes/no" questions and "either/or" questions. Use adjectives. Use past tense. Use irregular verbs. Use prepositions.		

OUTCOMES:

Abbott employees recognize and report orally kitchen accidents to supervisors.

WORKPLACE COURSE OUTLINE: ESL (MACLEAN MOLDED)

COMPETENCY: 5# Describe products and materials orally.

WORKPLACE FOCUS: Name and identify MacLean Molded products and materials.

Basic Skills	Instructional Activities	Instructional Materials
ORAL SKILLS Use work-related vocabulary. Use clarification techniques.	1. Oral clarification/using substitution drill "I need a hammer." "You need a what?" "I need a hammer."	1. Realia and pictures of tools
PRONUNCIATION SKILLS Pronounce English alphabet.	2. Flashcard drill using pictures of company products	2. Company product brochure
Pronounce work-related vocabulary.	3. Product identification drill	3. Realia
READING SKILLS Decode work-related vocabulary automatically.	4. "Go Fish" Game: pictures of company products	4. Teacher-made game using pictures from company brochure
Categorize.	5. Letter-by-letter dictation of product names	5. Teacher-made code chart
WRITING SKILLS Write work-related vocabulary.	6. Forming job categories from job titles	

OUTCOMES:

MacLean Molded employees name and identify company products and materials.

WORKPLACE COURSE OUTLINE: ESL MACLEAN MOLDED

COMPETENCY: #6 Give appropriate reason for absence or tardiness before work begins.

WORKPLACE FOCUS: Telephone work at an appropriate time to report absence or tardiness as per company policy.

Basic Skills	Instructional Activities	Instructional Materials
ORAL SKILLS Use work-related vocabulary.	1. Absence/tardiness substitution drill/dialogue	1. Teacher-made absence/tardiness substitution drill/dialogue
Use work-related greetings.	2. Matching exercise: personal pronouns with pictures	2. Teacher reference: *Survival English I*, pp. 3 & 4
Use clarification techniques.		
Use verification techniques.	3. Dialogues of phoning work using clarification and verification techniques	3. Teacher reference: *Day By Day*, pp.1 & 2
Give instructions.	4. Role-play on being late	4. Teacher-made role-playing activity on being late
Answer telephone appropriately.		
PRONUNCIATION Spell name aloud.	5. Discussion on good and bad excuses for being late or ill	5. Teacher-made sorting activity of good/bad excuses
Pronounce work-related vocabulary.	6. Problem-posing on being late	6. Teacher directed problem posing exercise
Pronounce personal information vocabulary.	7. Use of flash cards to drill days of week	7. Flashcards on days of week
READING SKILLS Decode days of week automatically.	8. Substitution drills on subject pronouns	8. Teacher reference: *Survival English I*, pp.12 - 19
Decode personal pronouns automatically.		
Read phrases and sentences.		

Basic Skills	Instructional Activities	Instructional Materials
GRAMMAR Use subject pronouns. Use imperatives. Form "wh" questions. Use adverbs of frequency.	9. Dictation of subject pronouns 10. Brainstorming reasons for being late 11. Discussion: comparing/contrasting reasons for illness/tardiness in native country and U.S.	9. Dictation - subject pronouns

OUTCOMES:

MacLean Molded employees give appropriate reasons to company personnel for tardiness or absence at the appropriate time.

WORKPLACE COURSE OUTLINE: ESL (MACLEAN MOLDED)

COMPETENCY: #7 State clearly that something has or has not been understood.

WORKPLACE FOCUS: Ask for clarification or state verifications of varying situations that employees encounter on the job.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING Listen for key words/details. Listen for general idea. **ORAL SKILLS** Give personal information. Use work-related vocabulary. Use clarification techniques. Use verification techniques. Report problems. **PRONUNCIATION** Pronounce work-related vocabulary. **READING** Sequence. **GRAMMAR** Form "yes/no" and "either/or" questions.	1. Drill: word cards with prepositions of place & company vocabulary	1. Teacher-made word cards
	2. Telling a story using a picture story	2. Teacher reference: *More Picture Stories,* p.13
	3. Student generated dialogue:"My name is.." "Your name is what?"	
	4. Matching exercise: identifying pictures of realia/objects	4. Realia: pictures of products
	5. Student-generated dialogue using realia names	
	6. Think Aloud - "What do you do when...?"	
	7. Disappearing dialogue: "I need a..." "You need a...?"	
	8. "Go Fish" Game: "I need a ..." "Do you have a...?"	8. Teacher-made game of "Go Fish"
	9. Naming products in room	9. Realia

Basic Skills	Instructional Activities	Instructional Materials
	10. Letter-by-letter dictation of product names/jobs	
	11. Drill on isolated vocabulary	
	12. Dialogue: "I quit", stressing automatic decoding of work-related vocabulary	12. Teacher reference: *Cambodian Mutual Assistance Program of Greater Lowell*
	13. Substitution and transformation drills - "yes/no" questions	13. Teacher reference: *Survival English I*, pp. 22-36

OUTCOMES:

MacLean Molded employees ask supervisors and co-workers for restatements to verify and clarify.

WORKPLACE COURSE OUTLINE: ESL (MACLEAN MOLDED)

COMPETENCY: #8 Summarize or repeat oral instructions.

WORKPLACE FOCUS: Repeat or summarize oral instructions to demonstrate comprehension of same for job.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING SKILLS Listen for key words, details. Listen for general idea. **ORAL SKILLS** Use work-related vocabulary. Use clarification techniques. Use verification techniques. Give instructions. Summarize. **PRONUNCIATION** Pronounce work-related vocabulary. **READING** Sequence. **GRAMMAR** Use subject pronouns. Use prepositions.	1. Encoding and decoding alphabet	1. Teacher reference: *Before Book I*, pp. 5-7
	2. Encoding product realia and pictures	2. Teacher-made product picture cards from company brochure
	3. Student retelling of story teacher has told	
	4. Game: "I need a ...", "You need a what?"	4. Teacher reference: *Day By Day*, p. 172
	5. TPR: opening a pack of gum; teacher giving step-by-step instructions for opening a pack of gum	5. One pack gum per student
	6. Telling of story in own words using a picture story	6. Teacher reference: *More Picture Stories*, p.13
	7. Problem Posing: calling in sick	7. Teacher-made activity
	8. Reading, discussing, and telling how to find specific information on form	8. Company insurance card
	9. Game: repeating instructions for placing object in certain places in room	9. Realia
	10. Putting picture story in order	10. Teacher reference: *More Picture Stories*, p.13

Basic Skills	Instructional Activities	Instructional Materials
	11. Completing self-evaluation form	11. *Self-Evaluation Chart,* J. Oswald - ALRC
	12. Discussing and summarizing weekend activities	
	13. Reading and telling about the people in text	13. *Survival English I,* pp. 12-19 *The New Oxford Picture Dictionary,* p. 102

OUTCOMES:

MacLean Molded employees summarize or repeat oral instructions given by supervisors to demonstrate comprehension.

WORKPLACE COURSE OUTLINE: ESL (MACLEAN MOLDED)

COMPETENCY: #9 Ask and answer simple appropriate personal questions about background.

WORKPLACE FOCUS: Communicate with MacLean Molded associates about personal issues.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING SKILLS Listen for key words/details.	1. Dialogues using personal information	1. Teacher reference: *Lifelines,* pp. 4-6
Listen for general idea.	2. Pair practice using personal data	2. Teacher reference: *Survival English I,* pp. 17 -19
ORAL SKILLS Give personal information. Use work-related vocabulary.	3. Explaining and practicing personal information vocabulary (name, address, spouse, etc.)	
Use work-related greetings.	4. Categorizing jobs according to job titles	4. Teacher-made job chart
Answer telephone appropriately.	5. Role playing on calling in sick	5. Company forms and policy
PRONUNCIATION Pronounce work-related vocabulary.	6. Drilling on isolated sounds and words	6. Company forms
Pronounce personal information vocabulary.	7. Oral comparison/ contrast of personal information vocabulary with native vocabulary to check correct English pronunciation	
	8. Complete self-evaluation of how the students use English outside of work	8. Self-evaluation form

Basic Skills	Instructional Activities	Instructional Materials
GRAMMAR Use subject pronoun. Form "wh" questions. Form "yes/no" questions and "either/or" questions. Use adjectives. Use prepositions.	9. Use of pictures to present subject pronouns	9. Teacher reference: *Survival English I,* pp. 4-7, 12-19
	10. Substitution drills testing subject pronouns	10. Teacher-made exercises and drills
	11. Role play asking personal information	11. Teacher reference: *Lifelines,* pp. 6 & 7
	12. Pair practice forming "wh" questions	12. Teacher-posed questions and answer worksheet
	13. Repetition and substitution drills forming "yes/no" "either/or" questions	13. Teacher reference: *Survival English I,* pp.28-31.
	14. TPR: use of grid and objects (teacher gives directions using prepositions - "Put the triangle on square 4." "Put the circle under the triangle.")	14. Teacher-made Grid/Game Teacher references: *Hable Inglés Action English:* pictures p. 102. *Survival English I,* p.56 *The New Oxford Picture Dictionary,* p. 102

OUTCOMES:

MacLean Molded employees ask and answer simple appropriate personal questions about background.

WORKPLACE COURSE OUTLINE: ESL (MACLEAN MOLDED)

COMPETENCY: #10 Follow instructions to carry out a simple task.

WORKPLACE FOCUS: Follow oral instructions given by a supervisor to complete job.

Basic Skills	Instructional Activities	Instructional Materials
LISTENING SKILLS Listen for key words/ details. Listen for general ideas.	1. Choral repetition	1. Teacher reference: *Action English Pictures,* p. 102
ORAL SKILLS Use work-related vocabulary.	2. Listening exercise on alphabet	2. Teacher reference: *Before Book I*, pp. 5-7
PRONUNCIATION Pronounce work-related vocabulary.	3. Discussion and role play telling that there is a mistake in the work	
	4. TPR: placement of objects in room	4. Realia
READING SKILLS Decode work-related vocabulary automatically.	5. Discussion of jobs and titles	
Sequence.	6. Role play involving jobs and job titles	
GRAMMAR Use subject pronouns. Use imperatives.	7. Dialogue with emphasis on decoding work-related vocabulary	7. Teacher reference: *Cambodian Mutual Assistance Program of Greater Lowell*
Use prepositions. Use adverbs of frequency.	8. Practice using subject pronouns	8. Teacher-made flash cards Teacher-made worksheet
	9. Pair practice using imperatives	9. Teacher-made worksheet

Basic Skills	Instructional Activities	Instructional Materials
	10. TPR: placment of objects on a numbered grid following teacher instructions using prepositions of place	10. Teacher-made grid game
	11. Cooperative learning structure: "Four Corners" (teacher names situation and students go to corner representing particular adverb of frequency)	11. Labels for corners

OUTCOMES:

Follow instructions and complete a task with instructions given by supervisor only in English.

WORKPLACE COURSE OUTLINE: ESL (MACLEAN MOLDED)

COMPETENCY: #11 Write personal information on a basic form.

WORKPLACE FOCUS: Fill out MacLean Molded personnel forms.

Basic Skills	Instructional Activities	Instructional Materials
ORAL SKILLS Use clarification techniques. **PRONUNCIATION** Pronounce English alphabet. Pronounce work-related vocabulary. **READING SKILLS** Read English alphabet. Decode work-related vocabulary automatically. Read abbreviations. Scan. **WRITING SKILLS** Write numbers. Write English alphabet. Write work-related vocabulary. Write abbreviations. Complete forms.	1. "Go Fish" Game using work-related vocabulary "I need a...." "Do you have a...?" 2. Disappearing dialogue using personal information 3. Practice dialogue 4. Comparison/contrast of English sounds for needed personal vocabulary "i" as in ship "a" as in hat "a" as in banana "or" as in word "u" as in cup "oo" as in book "o" as in no "a" as in ball "e" as in sheep "e" as in yes "i" as in fine "oy" as in boy "ou" as in house 5. Compare/contrast personal information with native language	1. Teacher-made "Go Fish" Game 2. Teacher-made disappearing dialogue 3. Teacher reference: *Day By Day*, p. 172. 4. Teacher-made flashcards of personal words: name, address, social security number, etc. 5. Teacher-made flashcards of personal words

Basic Skills	Instructional Activities	Instructional Materials
	6. Dialogue drill using above sounds	6. Teacher reference: *Before Book I,* pp. 5-7
	7. Minimal pair practice with above sounds	7. Teacher-made vocabulary cards
	8. Practice stress and intonation	
	9. Dictations of personal vocabulary	9. Teacher-made worksheet with dictation of sounds and personal vocabulary
	10. TPR with ABC flashcards	10. Teacher-made ABC flash cards
	11. Pair game: matching personal information vocabulary	11. Teacher-made cards with personal information vocabulary
	12. Disappearing flashcards	12. Teacher-made cards with personal information vocabulary
	13. Scanning exercise: searching for dictated information on company forms, i.e. location of name, address, etc.	13. Company forms
	14. Modeling numbers on chalkboard	14. Chalkboard and chalk
	15. Modeling alphabet on chalkboard	15. Chalkboard and chalk
	16. Practice writing cursive alphabet	16. Teacher-made cursive writing exercise of alphabet

Basic Skills	Instructional Activities	Instructional Materials
	17. Practicing writing student names in cursive	17. Teacher-made cursive writing exercise of individual student names
	18. Practice document for writing signatures	18. Teacher-made document
	19. Pair practice: writing work-related vocabulary using flashcards as cues	19. Teacher-made flashcards of work-related vocabulary
	20. Group practice: completing sample personal forms	20. Teacher- references: *Survival English,* pp. 22, 26 *Speaking Up at Work,* p. 135
	21. Independent work: completing company personnel forms	21. McLean Molded Personnel Forms

OUTCOMES:

MacLean Molded employees complete sections of company forms with personal information.

COMBINED GENERAL MATH WORKPLACE COMPETENCIES*

1. CALCULATE NET PAY FOR A SPECIFIED PERIOD.
2. PLOT AVERAGES AND COMPUTE THE RANGE AND UPPER AND LOWER LIMITS ON A COMPANY-DESIGNATED PROCESS CONTROL CHART.
3. READ AND INTERPRET COMPANY CHARTS AND GRAPHS.
4. MEASURE A GIVEN LENGTH OR OBJECT IN STANDARD AND/OR METRIC MEASURE. DETERMINE IF THE MEASUREMENT LIES WITHIN A GIVEN RANGE.
5. IDENTIFY AND APPLY GEOMETRIC PROPERTIES AND RELATIONSHIPS TO CONCRETE WORK SITUATIONS.
6. SOLVE AND EVALUATE ALGEBRAIC EQUATIONS IN ORDER TO FIND UNKNOWN DIMENSIONS ON A COMPANY BLUEPRINT AND/OR DIAGRAM.
7. USE A FOUR-FUNCTION CALCULATOR TO CALCULATE MACHINE DOWN TIME.
8. DETERMINE THE CORRECT WEIGHT PER SQUARE FOOT OF A PRODUCT.
9. MEASURE A PRODUCT AND DETERMINE IF THE MEASUREMENT LIES WITHIN A GIVEN RANGE.
10. DETERMINE IF THE WEIGHT PER SQUARE FOOT OF A PRODUCT FALLS WITHIN A SPECIFIED RANGE, BOTH IN TERMS OF POUNDS AND PERCENTAGE.

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* In the Workplace Course Outlines for Math on the following pages, MacLean Fogg addresses Competencies 1-6; Metalex addresses 2, 3, 7-10.

WORKPLACE COURSE OUTLINE: MATH (MACLEAN FOGG)

COMPETENCY: #1 Calculate net pay for a specified period.

WORKPLACE FOCUS: Determine employee pay and deductions.

Basic Skills	Instructional Activities	Instructional Materials
WHOLE NUMBERS Add, subtract, multiply, divide.	1. Calculating: -gross pay -net pay -regular hours -overtime -deductions	1. Company paystubs
DECIMALS Add, subtract, multiply, divide.	2. Predicting: -weekly income -yearly income -deductions	2. Company paystubs
	3. Demonstrating how to use software on decimals	3. Software: *Basic Math Skills-Operations*
	4. Practicing decimal operations	4. Software: *Basic Math Skills-Operations* Contemporary's *Number Sense: Decimals Multiplication Division,* pp. 1-17, 21-38

OUTCOMES:

Determine employee pay and deductions.

WORKPLACE COURSE OUTLINE: MATH (MACLEAN FOGG)

COMPETENCY: #2 Plot averages and compute the range and upper and lower limits on a company-designated process control chart.

WORKPLACE FOCUS: Calculate average, range, upper and lower limits from company data.

Basic Skills	Instructional Activities	Instructional Materials
DECIMALS Determine place value. Order decimals.	1. Manipulating base ten blocks to demonstrate place value	1. Base Ten Blocks
Add, Subtract, Multiply, Divide.	2. Ordering decimals by arranging index cards with place values	2. Teacher-made index cards with place value
GRAPHS Plot points.	3. Computing average and range with data from students (hours worked, weight, age, etc.)	3. Board, paper
PROBLEM SOLVING Apply problem solving strategies.	4. Computing average and range from company specific data and plot on a graph	4. Various fastener measurements, company S.P.C. chart and graph
	5. Discussing how various departments use S.P.C. charts in Total Quality Management	5. Teacher-made worksheet

Basic Skills	Instructional Activities	Instructional Materials
	6. Brainstorming various methods to correct "out of control" situations	6. Board
	7. Practicing decimal operations	7. Contemporary's *Number Sense: Decimals Addition & Subtraction,* pp. 19-28, 33-44

OUTCOMES:

Calculate the average, range, and upper and lower limits on a company S.P.C. chart.

WORKPLACE COURSE OUTLINE: MATH (METALEX)

COMPETENCY: #2 Plot averages and compute the range and upper and lower limits on a company designated process control chart.

WORKPLACE FOCUS: Improve accuracy and skill of employees in filling out and interpreting company charts and graphs.

Basic Skills	Instructional Activities	Instructional Materials
DECIMALS Order decimals. Determine place value.	1. Demonstration and discussion of place value and operations with decimals	1. Transparencies, overhead, blackboard
Add, subtract, divide. **GRAPHS** Plot points. **WHOLE NUMBERS** Add, subtract, multiply, divide.	2. Individual practice and drill on decimals	2. *Spectrum Math* Series Purple Book, pp. 9-14, 147-150; *Blue Book,* pp. 50-71, 160-174 Calculators Teacher-made worksheets
PROBLEM SOLVING Apply strategies	3. Teacher modeling of relationships between place values; student use of their own Base Ten Manipulatives	3. ETA Math Manipulatives Base Ten Blocks
	4. Place card game	4. Teacher-made decimal cards and playing sheets
	5. Trading card game	5. Teacher-made trading cards
	6. Small group collaborative learning activity to verify and interpret information	6. Company SPC charts and graphs

Basic Skills	Instructional Activities	Instructional Materials
	7. Small group problem solving activity	7. Teacher resources: *Daily Mathematics,* Books 4, 5, and 6; *Let's Get It Together* Teacher-made sheets
	8. Individual and pair work on decimals, averaging and graphing using computer software	8. Software: *"Math in the Workplace", Using Graphs, Charts and Tables*

OUTCOMES:

Enter measurements and plot their average on a company SPC chart and compute the range and upper and lower limits.

WORKPLACE COURSE OUTLINE: MATH (MACLEAN FOGG)

COMPETENCY: #3 Read and interpret company charts and graphs.

WORKPLACE FOCUS: Read and interpret Pareto charts and graphs.

Basic Skills	Instructional Activities	Instructional Materials
GRAPHS Read points on horizontal and vertical axes. Plot points for graphs. Scan for information. Compare graphic information.	1. Scanning a variety of company graphs	1. Company graphs
	2. Interpreting company graphs	2. Company graphs
	3. Predicting outcomes based on information in a company graph	3. Company graphs
	4. Creating a graph from company data	4. Company data
	5. Scanning a variety of charts and graphs from non-company sources	5. Newspapers and magazines
	6. Determining individual company benefits	6. Company benefit chart
	7. Listing reasons for using graphs and charts	7. Board, paper
	8. Teacher modeling of graphing software	8. Software: *Math in the Workplace - Using Graphs Charts and Tables*
	9. Creating graphs using software	9. Software: *Math in the Workplace - Using Graphs, Charts and Tables*
	10. Practice in graphing	10. Contemporary's *Number Power 5: Graphs, Tables, Schedules, and Maps*, pp. 34-58

OUTCOMES:

Read and interpret MacLean Fogg Pareto charts and graphs.

WORKPLACE COURSE OUTLINE: MATH (METALEX)

COMPETENCY: #3 Read and interpret company charts and graphs.

WORKPLACE FOCUS: Read and interpret company charts and graphs.

Basic Skills	Instructional Activities	Instructional Materials
GRAPHS Read points on horizontal and vertical axes. Scan for information.	1. Discussion and demonstration on how to read a chart and scan for information and compare	1. Overhead and transparencies of different charts, graphs, and data
Compare graphic information.	2. Individual practice on charts and graphs	2. *Spectrum Math Series Purple Book,* pp. 144-155, *Blue Book,* pp. 160-166
PROPORTION Set up proportions.	3. Looking for relationships and patterns in student-constructed lists or tables	3. Sample company data, newspaper charts, and graphs
PROBLEM SOLVING Apply strategies.	4. Student demonstrations on how a diagram can help solve a problem	4. Company charts and graphs
	5. Whole class discussion on student approaches to interpreting data on charts and graphs	5. Company charts and graphs
	6. Small group activity using models, known facts, properties and relationships to explain thinking	6. Teacher reference: *Get It Together,* pp. 69-73

OUTCOMES:

Use charts and graphs to check the quality of finished products.

WORKPLACE COURSE OUTLINE: MATH (MACLEAN FOGG)

COMPETENCY: #4 Measure a given length or object in standard and/or metric measure. Determine if the measurement lies within a given range.

WORKPLACE FOCUS: Measure MacLean Fogg fasteners, read MacLean Fogg blueprint measurements, and read calipers and rulers.

Basic Skills	Instructional Activities	Instructional Materials
MEASUREMENT Read fractional measurements on a measuring device. Read decimal measurements on a measuring device. Recognize U.S. and metric measurements. Convert U.S. measurements to metric. Convert metric measurements to U.S. DECIMALS Order decimals. Add, subtract, multiply, divide. Convert decimals to fractions. FRACTIONS Order fractions.	1. Measuring various fasteners in fractional measurement and arranging in ascending order 2. Measuring various objects in fractional measurement and converting to decimal equivalent 3. Calculating the missing measurement on a figure from a blueprint 4. Determining upper and lower limits from given specifications 5. Determining if measurements fall within tolerances 6. Scanning and highlighting company blueprints for metric and U.S. Standard measure	1. Calipers, rulers 2. Calipers, rulers 3. Company blueprint 4. Specifications from a company S.P.C. chart 5. Tolerances from a company S.P.C. chart 6. Company blueprint

Basic Skills	Instructional Activities	Instructional Materials
	7. Teacher modeling metric software	7. Software: *Math in the Workplace: Traditional and Metric Measurement*
	8. Practicing metric application	8. Software: *Math in the Workplace: Traditional and Metric Measurement*
	9. Converting standard measure on a blueprint to metric	9. Company blueprint
	10. Discussing the relevance of metric measure in industry	10. Newspaper article

OUTCOMES:

Measure MacLean Fogg fasteners, read MacLean Fogg blueprint measurements and read calipers and rulers.

WORKPLACE COURSE OUTLINE: MATH (MACLEAN FOGG)

COMPETENCY: #5 Identify and apply geometric properties and relationships to concrete work situations.

WORKPLACE FOCUS: Interpret the geometric principles used on a MacLean Fogg blueprint.

Basic Skills	Instructional Activities	Instructional Materials
GEOMETRY Identify and measure angles.	1. Discussing types of angles on blueprints	1. Company blueprint
Calculate angle complements and supplements.	2. Measuring angles on blueprints	2. Company blueprint, protractor
Calculate areas and perimeters of plane figures.	3. Practicing angle measurement	3. *Intro to Geometry,* pp. 9-10
PROPORTIONS Set up proportions.	4. Drawing a set of parallel lines with a transversal, measuring angles, and discussing relationships	4. Protractor, ruler, paper
Solve proportions.	5. Measuring classroom, calculating perimeter and area	5. Tape measure, paper
	6. Drawing a diagram of the room to scale	6. Ruler, paper
	7. Practicing angles, perimeter, and area problems	7. *Making the Grade,* pp. 53-74

OUTCOMES:

Interpret the geometric principles used on a MacLean Fogg blueprint.

WORKPLACE COURSE OUTLINE: MATH (MACLEAN FOGG)

COMPETENCY: #6 Solve and evaluate algebraic equations in order to find unknown dimensions on a company blueprint and/or diagram.

WORKPLACE FOCUS: Read MacLean Fogg blueprints and/or diagrams.

Basic Skills	Instructional Activities	Instructional Materials
ALGEBRA Add, subtract, multiply, divide.	1. Discussing grouping of signed numbers	1. *Developing Skills In Algebra One, Blackline Masters, pp. 17*
Calculate powers and roots. Solve equations. Graph linear equations. GRAPHS Read points on horizontal and vertical axes.	2. Practicing order of operation, exponents, square roots, variables	2. *Developing Skills In Algebra One, Blackline Masters,* pp. 33, 45-46, 49 Contemporary's *Number Power 3: Algebra,* pp. 47-50
Plot points.	3. Orally reviewing math vocabulary (students provide examples and discuss relationships)	3. Teacher-made list of basic algebra vocabulary
	4. Practicing addition, subtraction, multiplication, division of integers, evaluating variable expressions, reciprocals, and combining like terms	4. Contemporary's *Number Power 3: Algebra,* pp. 44-70 *Developing Skills In Algebra One, Blackline Masters,* pp. 42, 43, 45, 47, 55
	5. Creating and solving algebraic expressions	5. Newspaper article on labor and productivity

Basic Skills	Instructional Activities	Instructional Materials
	6. Locating a destination on a map or grid using a coordinate axis and ordered pairs	6. Road atlases, teacher-made grid of city blocks
	7. Solving perimeter and area problems using equations	7. Models of plane figures: rectangle, square, triangle, etc.
	8. Graphing linear equations	8. Graph paper

OUTCOMES:

Read MacLean Fogg blueprints and diagrams.

WORKPLACE COURSE OUTLINE: MATH (METALEX)

COMPETENCY: #7 Use a four-function calculator to calculate machine down time.

WORKPLACE FOCUS: Fill out production data sheets more accurately

Basic Skills	Instructional Activities	Instructional Materials
DECIMALS Add, divide, round off. **FRACTIONS** Add.	1. Demonstration on how to use a four-function calculator	1. Overhead and calculator transparency Calculators
Convert clock minutes to decimal hourly equivalents. Convert fractions to decimals.	2. Use a clock face manipulative to show fractions of a circle and relate minutes to fractional hours	2. Clock face manipulative
PROPORTION Set up ratios. **WHOLE NUMBERS** Add, divide, multiply, subtract. **CALCULATOR** Perform basic math operations.	3. Individual practice	3. *Spectrum Math Series Purple Book,* selected problems, pp. 91-99 Company Daily Inspection Reports and teacher-made practice problems
PROBLEM SOLVING Apply strategies.	4. Whole class discussion; problem solving using K-W-L strategy	4. *Get It Together,* pp. 18-21
	5. Trading card game	5. Teacher-made trading cards
	6. Fraction Dominos (equivalent fractions can match as well as the same fraction)	6. Teacher-made dominoes

Basic Skills	Instructional Activities	Instructional Materials
	7. Decimal Place Game	7. Teacher-made decimal cards and playing sheets
	8. Using colored candies, i.e. M&M's, to count and set up fractional ratios and change to decimal equivalents	8. Colored candies

OUTCOMES:

Use a calculator to calculate machine down time and enter data on a company data sheet.

WORKPLACE COURSE OUTLINE: MATH (METALEX)

COMPETENCY: #8 Determine the correct weight per square foot of a product.

WORKPLACE FOCUS: Check accuracy of dimensions of products through comparison with company set specifications.

Basic Skills	Instructional Activities	Instructional Materials
DECIMALS Multiply and divide.	1. Demonstration of how to read and measure with different devices	1. Overhead and transparencies
MEASUREMENT Read fractional measurements on a measuring device.	2. Discussion of rules for multiplying and dividing decimals	2. Base ten overhead blocks
Convert square feet to square inches.	3. Discussion of ratio and proportion	3. Rainbow fraction tiles
FRACTIONS Convert to decimals.	4. Demonstration on converting measurements	4. Cuisenaire rods
PROPORTION Solve proportions. Calculate percents.	5. Measuring various items in room and company products	5. Tape measure and rulers Company samples
PROBLEM SOLVING Apply strategies.	6. Practicing measurement problems individually	6. *Spectrum Series Purple Book,* pp. 49-54, 9-14; *Blue Book,* pp. 72-83, 50-71
ALGEBRA Add and subtract signed numbers. Solve equations.	7. Discussion of how company shop orders and standards apply	7. Production-shop orders Standards from the company on manufactured material Teacher-made worksheets Teach reference: *Refresher Mathematics*

Basic Skills	Instructional Activities	Instructional Materials
	8. Computer assisted learning	8. Software *"Basic Math Skills" Operations*
	9. Small group problem solving activity using models, known facts, properties, and relationships to explain thinking	9. *Get It Together,* pp. 69-72
	10. Demonstration of number line and solving equations with signed numbers	10. Overhead and transparencies
	11. Discussion and guided practice on area and perimeter	11. Blackboard Teacher-made worksheets

OUTCOMES:

Determine if finished products have the correct weight per square foot.

WORKPLACE COURSE OUTLINE: MATH (METALEX)

COMPETENCY: #9 Measure a product and determine if the measurement lies within a given range.

WORKPLACE FOCUS: Check accuracy of dimensions of products through comparison with company set specifications.

Basic Skills	Instructional Activities	Instructional Materials
DECIMALS Determine place values. Order decimals.	1. Discussion of fractional and decimal equivalents	1. Overhead and transparencies Blackboard
Add, subtract. **FRACTIONS**	2. Demonstration of place values, ordering, and range	2. Cuisenaire rods for overhead and for students
Convert fractions to decimals. Order fractions.	3. Discussion of conversion from metric to U.S. Standard and vice versa	3. Overhead and transparencies
MEASUREMENTS Read fractional measurements.	4. Individual practice on conversions	4. *Spectrum Math Purple Book,* pp. 79-93; *Blue Book,* pp. 85-94
Read decimal measurements. Convert U.S. to metric measurements.	5. Manipulation of Cuisenaire rods to see fractional and decimal equivalents	5. Cuisenaire rods
Convert metric to U.S. measurements.	6. Practice doing conversions	6. Teacher-made worksheets with sample measurement
PROBLEM SOLVING Apply strategies.		Company standards from Production Shop orders

Basic Skills	Instructional Activities	Instructional Materials
	7. Computer-assisted learning: individual and pairs on measurement	7. Software: *Math In The Workplace: Traditional and Metric Measurement*
	8. Trading card game	8. Teacher-made trading cards
	9. Decimal place game	9. Teacher-made decimal cards and sheets
	10. Collaborative group activity Problem solving exercise	10. Teacher resource: *Get It Together*, selected pages

OUTCOMES:

Determine if measurements of finished products lie within a given range.

WORKPLACE COURSE OUTLINE: MATH (METALEX)

COMPETENCY: #10 Determine if the weight per square foot of a product falls within a specified range, both in terms of pounds and percentage.

WORKPLACE FOCUS: Check accuracy of dimensions of products through comparison with company set specifications.

Basic Skills	Instructional Activities	Instructional Materials
DECIMALS Determine place value. Order decimals. Add, subtract.	1. Demonstration on how to calculate percent, range, and upper and lower limits	1. Overhead and transparencies Blackboard
PROBLEM SOLVING Apply strategies.	2. Practice calculating percent	2. *Spectrum Math Series Purple Book,* pp. 55-58; *Blue Book*, pp. 85-94
PROPORTION Calculate percents.	3. Practice computing range and upper and lower limits on company reports and charts	3. Company Daily Inspection Reports Company S.P.C. charts Teacher-made problems
	4. Verifying and interpreting results with respect to the original problem	4. Teacher reference: *Daily Mathematics,* Books 4, 5, and 6 Company reports and graphs
	5. Decimal place game	5. Teacher-made decimal cards and sheets
	6. Use colored candies to calculate percent	6. Colored candies
	7. Trading card game	7. Teacher-made trading cards

OUTCOMES:

Determine if weights fall within a specified range of the nominal weight both in terms of percent and pounds.

COMBINED READING/WRITING WORKPLACE COMPETENCIES*

1. READ AND INTERPRET COMPANY-RELATED MATERIALS.
2. DEMONSTRATE THE USE OF VOCABULARY STRATEGIES TO ASSIST IN THE READING OF COMPANY-RELATED MATERIALS.
3. WRITE A CLEARLY STATED AND WELL-ORGANIZED MEMO.
4. LIST AND EVALUATE POSSIBLE SOLUTIONS TO A WORKPLACE PROBLEM.
5. USE A LEARNING LOG TO TRACK CHANGES IN ATTITUDE TOWARD SELF, CLASS, AND JOB.
6. CONSTRUCT MEANING AND SUMMARIZE KEY CONCEPTS IN COMPANY-RELATED MATERIALS.
7. FOLLOW ORAL INSTRUCTIONS TO COMPLETE A WORK-RELATED TASK.
8. USE A VARIETY OF VOCABULARY STRATEGIES TO READ AND PARAPHRASE COMPANY-RELATED MATERIAL.
9. WRITE A WORK-RELATED NOTE THAT COMMUNICATES IDEAS IN A LOGICAL ORDER.

* In the Workplace Course Outlines for Reading/Writing, Baxter Healthcare addresses Competencies 1-5; Reliable Power addresses 6-9.

WORKPLACE COURSE OUTLINE
READING/WRITING (BAXTER HEALTHCARE)

COMPETENCY: #1 Read and interpret company-related material.

WORKPLACE FOCUS: Read and use standard operating procedures, specifications, job instruction breakdowns, the employee handbook, and human resource documents and forms.

Basic Skills	Instructional Activities	Instructional Materials
READING Identify purpose for reading. Read for literal and inferential comprehension. Recognize and state the main idea. Identify factual details. Summarize. Use background knowledge. Use context clues. Predict/confirm. Draw conclusions. Skim for general information. Scan for specific information. Sequence ideas. Access headings and subheadings.	1. Whole class presentations/ discussions: -ReQuest -Levels of questions -Active reading -DRTA -K-W-L 2. Individual guided practice on: -Recognizing the main idea -Stating the main idea of articles/documents -Skimming for general information in documents -Scanning for specific details 3. Small group activities: -Headline match -Predict headlines/titles -Concept mapping -Key word predicting	1. Teacher Resources: -*Content Area Reading* -*Reading for Meaning: Selected Strategies* -*Teachers, Tools & Techniques* 2. News articles, company related materials (standard operating procedures, job instruction breakdowns, specifications, employee handbook, human resource forms/documents) 3. Teacher-made materials, news articles, company-related materials

Basic Skills	Instructional Activities	Instructional Materials
Read numbers, dates, times, technical and non-technical vocabulary. **WRITING** Write phrases, sentences, paragraphs. Identify purpose for writing.	4. Think-Pair-Share: -Identifying transition words -Sequencing steps -Locating missing steps -Graphic organizers -Writing/following directions -Asking your own questions	4. News articles, company-related materials, teacher-made worksheets and guides
Sequence information. Select relevant details. Record essential information. Summarize.	5. Individual writing to enhance comprehension: -Summaries -Graphic organizers -Concept mapping -Questions -Journaling	5. Student journals, news articles, company-related materials, teacher-made guides

OUTCOMES:

Employees read and summarize main idea, scan for specific information, and sequence appropriate process steps.

WORKPLACE COURSE OUTLINE
READING/WRITING (BAXTER HEALTHCARE)

COMPETENCY: #2 Demonstrate the use of vocabulary strategies to assist in the reading of company-related materials.

WORKPLACE FOCUS: Determine the meaning of work-related vocabulary in standard operating procedures, specifications, job instruction breakdowns, the employee handbook, and human resource forms and documents.

Basic Skills	Instructional Activities	Instructional Materials
READING Read for literal and inferential comprehension. Use background knowledge and context clues. Predict/confirm. Compare/contrast. Skim for general information. Read technical and non-technical vocabulary.	1. Whole class presentations/ discussions: -Vocabulary cards with personal/work-related words in context, definition, personal example -Key word predicting -Pre-reading anticipation guides to develop concepts	1. Instructor-generated examples, dictionaries, thesauruses, news articles, company-related materials (standard operating procedures, job instruction breakdowns, employee handbook, human resource forms and documents.)
VOCABULARY Recognize synonyms and antonyms. Use dictionary/ thesaurus. Understand multiple meanings.	2. Think-Pair-Share Activities: -Identifying context clues in sentences, paragraphs -Matching definitions with words encountered in context -Multiple meanings: values clarification questionnaire	2. *What's In a Word?* Also, company-related materials Teacher-made worksheets and examples Teacher Resource: *Content Area Reading*

Basic Skills	Instructional Activities	Instructional Materials
	-Identifying background experience used to determine meanings of words in context -Cloze activities -Games, puzzles -Semantic mapping -Categorizing	
	3. Small group activities: -Using unit words in a narrative which is recorded on chart paper/transparencies -"Pass around stories" (students continue narrative started by other students) -Write a description of job duties using individual key words.	3. *What's In a Word?* Also, unit words, instructor-generated story starters, and individual student vocabulary relating to department

OUTCOMES:

Employee uses context clues and experiential background to determine the meaning of work-related vocabulary.

WORKPLACE COURSE OUTLINE
READING/WRITING (BAXTER HEALTHCARE)

COMPETENCY: #3 Write a clearly-stated and well-organized memo.

WORKPLACE FOCUS: Document requests and messages to supervisors in writing.

Basic Skills	Instructional Activities	Instructional Materials
READING Read for literal comprehension.	1. Whole class discussion: memo format and language	1. *Writing for Employment,* Unit 6
Recognize and state the main idea. Identify factual details. Use background knowledge.	2. Individual guided practice: -Identifying and using memo format -Identifying and using concise and non-biased language	2. *Writing for Employment Activity* 6-1, 6-2, *Grammar and Writing for Job and Personal Use*, Instructor's Manual Checkpoint 13-3, Bonus Activity 13-3
Skim for general information. Scan for specific information.	3. Small group activity: writing a memo and recording on chart paper or transparencies for presentation	3. Student-generated scenario Teacher Resource: *Business Correspondence*
Access headings and subheadings.	4. Self-evaluation checklist	4. Teacher-generated competency checklist
Read numbers, dates, times, and technical and non-technical vocabulary. **WRITING** Write phrases, sentences, and paragraphs, numbers, dates, times, and technical words. Identify purpose for writing. Select relevant details. Sequence information.	5. Addressing individual writing needs in whole class, flexible grouping, or individual format Examples: -Categorize cards with subjects and predicates and use to write complete sentences -Peer editing for clarity -Sentence combining -Punctuation review -Learning stations	5. Teacher-made cards, worksheets and learning stations: -Student drafts and revisions -Student-generated memos Teacher resources: -*Exercising Your English* -*Teachers, Tools & Techniques*

Basic Skills	Instructional Activities	Instructional Materials
Summarize. Record essential information. Use concise, non-biased language. Use correct punctuation and capitalization. Proofread for errors. Recognize and use proper memo format.		

OUTCOMES:

Employees express thoughts clearly and concisely in a memo format.

WORKPLACE COURSE OUTLINE
READING/WRITING (BAXTER HEALTHCARE)

COMPETENCY: #4 List and evaluate possible solutions to a workplace problem.

WORKPLACE FOCUS: The need to organize thoughts and think through problems before approaching supervisors concerning problems.

Basic Skills	Instructional Activities	Instructional Materials
READING Read for literal and inferential comprehension.	1. Role-playing problem scenario to identify "gap" and "obstacle"	1. *Problem Solving,* Unit 1, Instructor-generated scenarios
Recognize and state the main idea. Summarize.	2. Journal entry to identify and describe positive opportunities which resulted from problems in students' lives	2. *Problem Solving,* Unit 1, Student journals
Use background knowledge. Predict/confirm.	3. Informal pre-reading discussion of "tough love"	3. *Problem Solving,* Unit 2, Instructor-generated questions
Skim for general information.	4. Group discussion of problem solving process	4. Student-generated scenarios
WRITING Write phrases, sentences, paragraphs, and general impressions. Record essential information. Summarize information.	5. Role playing to define the problem and explore common reactions such as denial, blame, compromise, and avoidance	5. *Problem Solving,* Unit 3, Teacher-made guide
LISTENING/SPEAKING Verbally summarize. Ask questions for clarification. Distinguish between relevant and irrelevant information.	6. Small group activity to brainstorm possible solutions to workplace problems	6. Student-generated scenarios

Basic Skills	Instructional Activities	Instructional Materials
	7. Individual writing to identify workplace problem and discuss solution from the perspective of another person	7. *Problem Solving,* Unit 6
	8. Think-Pair-Share: Eliminating alternatives that are not options	8. *Problem Solving,* Unit 7, List of student-generated scenarios/possible solutions
	9. Final project to: -Define the problem -Identify the cause -Brainstorm possible solutions -Evaluate alternatives -Evaluate portfolio	9. Teacher-made problem solving portfolio guide, individual student scenarios, peer evaluation form

OUTCOMES:

Employees list possible solutions to a workplace problem and summarize evaluation of alternatives.

WORKPLACE COURSE OUTLINE
READING/WRITING (BAXTER HEALTHCARE)

COMPETENCY: #5 Use a learning log to track changes in attitude toward self, class, and job.

WORKPLACE FOCUS: Company emphasis on qualitative changes such as improved confidence in ability to express thoughts in writing

Basic Skills	Instructional Activities	Instructional Materials
READING Read for literal and inferential comprehension. Identify purpose for reading. Summarize.	1. Whole class presentations/ discussions: -Writing process and purposes for writing -Brainstorming -Clustering	1. All activities use student journal Teacher resource: *Pre-GED Writing and Language Skills*
Use background knowledge. Compare/contrast.	2. Individual writing prompts	2. Teacher-generated prompts
Draw conclusions.	3. Pre-reading, informal writing, and discussion on controversial issues	3. News articles and essays
Skim for general information. Sequence ideas.	4. Five-minute writing on randomly-selected topic	4. *What's In a Word?*
WRITING Write general impressions, phrases, sentences, and paragraphs. Identify purpose for writing. Record essential information. Summarize.	5. Think-Pair-Share Activities: -Identifying examples of negative thinking -Turning negative statements into positive statements -Writing affirmations -Setting goals -Developing personal action plans -Assessing changes in attitudes	5. *Writing for Employment,* Unit 8 Teacher resource: *How to Build Your Self-Esteem* Teacher-made self-evaluation checklists

OUTCOMES:

Employees communicate thoughts and feelings in writing with increased fluency and expresse increased confidence as reflected in log entries and checklists.

WORKPLACE COURSE OUTLINE
READING/WRITING (RELIABLE POWER)

COMPETENCY: #6 Construct meaning and summarize key concepts in company-related materials.

WORKPLACE FOCUS: Read and use company documents including SOPs, SPCs, manufacturing instructions, and quality control documents.

Basic Skills	Instructional Activities	Instructional Materials
READING Identify the purpose for reading.	1. Language experience activity on crime-related experiences	1. Newspaper article on crime; chart, paper, markers
Read for literal comprehension. Identify the topic.	2. Independent or group work on appropriate pages from text	2. *What's In a Word,* pp.151-160
Identify factual details. State the main idea.	3. Modeling of summaries of student-collected workplace materials	3. Workplace documents, memos, notices, letters to employees from management
Paraphrase and summarize. Use background knowledge.	4. Group activity to read, discuss, summarize, and share with class	4. Materials used in above activity
Use context clues. Predict and confirm.	5. Prereading questions to guide reading of selection from text	5. *What's In a Word,* pp. 107-112
Compare and contrast. Use cause and effect. Draw conclusions.	6. Roundtable activity on change and ISO 9000	6. Reference: *The Employee Handbook for Organizational Change*
Scan for specific information. Sequence ideas. Access headings. Read for inferential comprehension.	7. Small group activity to organize student material, read related document, and formulate questions	7. Student-generated material

Basic Skills	Instructional Activities	Instructional Materials
WRITING Record essential information.	8. Concept mapping activity to model topic, main idea, supporting details for a reading selection	8. *Reading Skills for Life and Work*, pp. 68-69
LISTENING/SPEAKING Verbally summarize. Identify key words.	9. Independent group activity to produce mapping of topic	9. *Reading Skills for Life and Work*, pp. 44-45
Use transition/key words.	10. Anticipation guide for reading passage	10. *What's In a Word*, pp. 127-133
VOCABULARY Identify and use affixes and roots. Recognize synonyms/antonyms. Use reference materials. Understand technical vocabulary.	11. K-W-L activity on newspaper article	11. Newspaper article, worksheet with three columns

OUTCOMES:

Employees read with confidence and interpret documents detailing job descriptions, work procedures, and manufacturing instructions so that the information can be explained to others.

WORKPLACE COURSE OUTLINE
READING/WRITING (RELIABLE POWER)

COMPETENCY: #7 Follow oral instructions to complete a work-related task.

WORKPLACE FOCUS: Development of improved listening techniques with supervisor directions or co-worker discussions in work-related situations.

Basic Skills	Instructional Activities	Instructional Materials
READING Identify the topic and factual details. Paraphrase and summarize. Use background knowledge. Predict and confirm. Sequence. Use cause/effect, and comparison/contrast. **LISTENING/SPEAKING** Differentiate kinds of listening. Follow instructions. Give directions effectively. Identify key words. Use transition words and key words to clarify writing. Ask questions for clarification. Address key points.	1. Brainstorming to clarify concept of listening	1. Board work
	2. Brainstorming signal words that indicate organizational patterns	2. List of words on board
	3. Whole class presentation: -Words used as modifiers (e.g. all/some) -Characteristics of good listeners	3. Teacher-generated sentences
	4. Semantic mapping to develop array of verbs used to give directions	4. Board work
	5. Small group collaborative activities: -Writing directions to perform a task -Arranging cut-up paragraphs in sequential order	5. Teacher-generated worksheet, list of "how to" tasks Teacher-made story, scissors, envelopes
	6. Think, pair, share to identify sequential order, cause/effect, and comparison/contrast	6. Teacher-generated sequential selection with out-of-order sentences following Handout: word predictors Paragraph from the workplace using cause/effect and comparison/contrast

Basic Skills	Instructional Activities	Instructional Materials
Distinguish between relevant and irrelevant information. Verbally summarize. **VOCABULARY** Understand technical vocabulary.	7. Instructor-directed activities: -Follow verbal instructions to achieve predetermined results -Listen to oral reading for numbers and initials -Class discussion	7. Teacher-generated: -List of instructions -Sentences -Sentences with words that generalize and qualify -Instruction sheet
	8. Independent student activities to complete sentence stems verbally and in writing	8. Worksheet: Sentence stems
	9. Journal writing to report something heard	9. Student journals

OUTCOMES:

Employees identify characteristics of effective listening, follow oral instructions, give clear sequential instructions.

WORKPLACE COURSE OUTLINE
READING/WRITING (RELIABLE POWER)

COMPETENCY: #8 Use a variety of vocabulary strategies to read and paraphrase company-related materials.

WORKPLACE FOCUS: Read, explain, and use workplace documents.

Basic Skills	Instructional Activities	Instructional Materials
VOCABULARY Identify usage of prefixes and suffixes. Identify usage of roots and root words. Recognize and use synonyms and antonyms. Alphabetize.	1. Think, pair, share to identify affixes and use them in decoding	1. Job descriptions from workplace documents Teacher-made worksheet with accompanying transparency Sentences from workplace documents
Use dictionary/thesaurus.	2. Brainstorming work-related words with affixes	2. Words listed on the board
Understand multiple meanings. Read and understand technical and non-technical vocabulary.	3. Semantic mapping activity to categorize words	3. Teacher-made list of unknown words and sentences with context clues
Identify words as predictors of ideas.	4. Problem solving to decipher unfamiliar work-related vocabulary	4. Workplace forms
WRITING Sequence information. Use concise language.	5. Pronunciation activity using words with prefixes, suffixes, and common roots	5. Board work with word groups, e.g. prefer/preference
READING Use background knowledge.	6. Small group activity using words in sentences	
Paraphrase and summarize. Access reference materials. Use context clues.	7. Problem-solving activity to access reference materials using roots, suffixes, and prefixes	7. Teacher-made word list Dictionaries, thesauri, encyclopedias

Basic Skills	Instructional Activities	Instructional Materials
LISTENING/SPEAKING Use transition and key words. Ask questions for clarification. Distinguish between relevant and non-relevant information.	8. Model think-aloud protocol to determine meaning of paragraph using all vocabulary strategies	8. Teacher-generated paragraph with difficult, unfamiliar words Teacher-made worksheets
	9. Journal entry: Paraphrase of paragraph from a workplace document	9. Student journals
	10. Think-aloud: Discussion of vocabulary strategies used to understand unfamiliar words	10. "Difficult" reading passages

OUTCOMES:

Employees use vocabulary strategies to complete a cloze exercise from workplace material with targeted vocabulary structures.

WORKPLACE COURSE OUTLINE
READING/WRITING (RELIABLE POWER)

COMPETENCY: #9 Write a work-related note that communicates ideas in a logical order.

WORKPLACE FOCUS: The need to write effectively to communicate information to co-workers and supervisors.

Basic Skills	Instructional Activities	Instructional Materials
WRITING Write phrases, sentences, and paragraphs. Write numbers, dates, and times. Write technical words. Identify purpose for writing. Sequence information. Select relevant details. Record essential information. Paraphrase and summarize information. Use concise language. Use dictionary and thesaurus. Understand multiple meanings. **READING** Use background knowledge. Predict/confirm. Compare and contrast. Use cause and effect.	1. Oral discussion to identify main idea, key points, and less important facts 2. Guided instructions to review verbs and sentence structure 3. Brainstorming ideas on the board to cluster or categorize ideas 4. Language experience approach to: -Use student background -Develop sentences on a specific topic -Edit, revise, and correct sentences 5. Graphic organizers to illustrate thinking patterns: sequence, cause and effect, comparison and contrast 6. Brainstorming types of information for specific topic (time order for directions) 7. Modeling the clustering process with information from brainstorming	1. Newspaper article 2. Teacher-generated worksheet 3. Board work 4. Student-generated sentences 5. Teacher-reference: *Reading Tactics* 6. Board work 7. Chart paper

Basic Skills	Instructional Activities	Instructional Materials
LISTENING/SPEAKING Identify key words. Ask questions for clarification. Address key points. Use transition/key words. **VOCABULARY** Recognize synonyms/ antonyms.	8. Small group collaborative activity to write and edit notes on overhead	8. Transparencies
	9. Freewriting activity individualized to students' abilities	9. Teacher-made sentence stems
	10. Modeling of note writing	10. Teach-designed scenario for note
	11. Small group activity to brainstorm ideas on teacher-assigned topic	11. Board work
	12. Individualized activity to write notes from ideas generated in groups	12. Student notebooks
	13. Tape recorded note to assist editing	13. Tape recorder
	14. Think, pair, share to determine three criteria for editing students' work	14. Student-generated criteria
	15. Individual writing activity to produce rewrite of notes	15. Student notebooks
	16. Individualized writing to write a job description	16. Company documents
	17. Comparison/contrast activity to compare student job descriptions with company documents	17. Student drafts
	18. Journal writing to record progress	18. Student journals

OUTCOMES:

Employees write a clear, concise note to report a work-related problem.

LESSON PLANS

INTRODUCTION

A lesson plan is an important and necessary tool for the instructor. It documents what is taught, organizes a lesson in a logical, sequential form, and provides ongoing evaluation that gives direction to future plans.

When creating a lesson plan format, flexibility is a prime necessity. Since instructors are unique in their teaching styles, lesson plan flexibility is important. However, consistency in format is necessary to meet pedagogic standards. The format has three basic parts. The first part lists the competencies used in the lesson, the basic skills needed to fulfill the competencies for that lesson, the level and duration of the class, and a list of resources, materials, and texts used. More than one competency may be addressed in a lesson to keep the lesson moving and varied. A listing of basic skills makes the instructor analyze the parts of the whole that need to be taught so that students may successfully demonstrate the competency. Class level may vary between homogeneous and multilevel. Classes also vary in duration of meeting time. These factors are important for creating materials and determining various teaching techniques, methods, and strategies to use. They also help the instructor set realistic goals.

The second part of the format concerns the lesson itself. A few minutes of warm-up or review activities make up the introduction of the lesson. This time is always well-spent since it helps the class to focus on learning. It requires the class to use previous knowledge and review recently presented material. Following the introduction is the presentation of new material accompanied by one or more guided practices, so the students are given a variety of ways to learn the new material. Guided practice should involve a variety of learning styles to meet all students' preferences. Depending on the length of the class period, more than one presentation/guided practice set could be included in a lesson. Finally, application of the newly learned knowledge is essential. This demonstration approximates real-life performance demands and maximizes the possibility of life transfer of skills learned. Application need not appear in every lesson. It is a final product drawn from the many skills taught over a series of lessons.

The third part of the lesson format concerns teacher comments. The instructor may write notes on the lesson: what worked, what did not work, feedback from the students, what to do in the future. This is very valuable information for the instructor who may adjust future lessons or better accommodate the students' instructional needs.

Six complete lesson plans follow, one for each class taught through the project. All follow the same format, but all are individualized for each teacher and class.

SAMPLE LESSON PLAN FOR ESL CLASS AT ABBOTT

COMPETENCY: Read and follow a recipe. (# 1)

BASIC SKILLS: Listen for key words/details, use work-related vocabulary, use clarification techniques, use verification techniques, pronounce work-related vocabulary, pronounce fractions, decode work-related vocabulary automatically , read abbreviations, scan, form yes/no questions, use fractions, write numbers, fractions, work-related vocabulary, abbreviations.

CLASS: Intermediate Food Service - ESL Two 2-hour sessions

RESOURCES/MATERIALS/TEXTS: "Meal Match Up" from *The Complete ESL/EFL Cooperative & Communicative Activity Book*, kitchen verb "Charade" game, abbreviation worksheet, recipes, abbreviation bingo, "Go Fish" Game

WARM-UP/REVIEW:

- Pair work with "Meal Match-Up", pp. 97-98; match words to definitions; group foods into meal categories.
- "Charade" game: students act out kitchen verbs for classmates.

PRESENTATION:

- Brainstorm kitchen measurement vocabulary. Teacher writes on board any abbreviations students are not sure of. Teacher erases the board.
- Hand out measurement list. Students write the abbreviations. Correct papers together with teacher.

GUIDED PRACTICE:

- Hand out recipe sheets. Students read the ingredients aloud.
- Students write complete measurement word from the abbreviation on the recipe.
- Teacher writes the complete measurement word on the board. Students write the abbreviations.
- Play abbreviation "Bingo".
- Teacher dictates abbreviations to be written.
- Brainstorm clarification phrases; write on board. Students must check each request using a clarification technique.
- Students use recipe sheets to dictate abbreviations and amounts to partners, using clarification techniques to make sure each understands.
- Play abbreviation "Go Fish" using clarification techniques.

APPLICATION:

- Bring recipe to class and read it to the teacher.

COMMENTS: This was an easy lesson for these students, but they all seemed to have some things to learn from it. They enjoyed the lesson and expressed their excitement about the class.

SAMPLE LESSON PLAN FOR ESL CLASS AT MACLEAN MOLDED

COMPETENCY: Describe products and materials orally. (# 5) Discuss simple personal questions about background. (# 9) Write personal information on basic form. (# 11)

BASIC SKILLS: Use work-related vocabulary, use clarification techniques, pronounce English alphabet, pronounce work-related vocabulary, pronounce personal information vocabulary, decode work-related vocabulary automatically, categorize, write work-related vocabulary, give personal information, use work-related greetings, pronounce personal information vocabulary, use subject pronouns, form "WH" questions, form "yes/no" & "either/or" questions, use adjectives, use prepositions, read abbreviations, scan, read English alphabet, write English alphabet, penmanship, write abbreviations, complete forms.

CLASS: Pre-beginning ESL One 1 1/2-hour session

RESOURCES/MATERIALS/TEXTS: Maclean Molded realia (arrestor, shed, silicon insulator, etc.), teacher-made product vocabulary cards, *The New Oxford Picture Dictionary*, teacher-made student cursive names for tracing, Maclean Molded insurance form

WARM-UP/REVIEW:

- Greet upon entering class; questions about weekend.
- Student for the day asks others to name product realia in room and tell WHERE it is.
- Review of prepositions, *The New Oxford Picture Dictionary,* pp. 102, 102: note placement.
- Review of product name cards - looking for automatic response.
- Using English alphabet, student leader dictates spelling of product names; others write them.
- Scan MacLean Molded insurance form for necessary required personal information, making particular note of the term "signature".

PRESENTATION:

- Teacher presents signature writing and writes each individual name for each student; particular attention is given to linkage of cursive letters.
- Students practice by trading names with partner and practicing the writing of their partner's name.

GUIDED PRACTICE:

- Teacher gives each student his/her complete name to practice in class and forstudents to take home for further practice.
- Students pair practice spelling names of their classmates.

APPLICATION:

- Use cursive writing to sign documents requiring a signature.

COMMENTS: Student leader concept works well. Have students physically move the realia to encourage involvement. The student dictation is a big motivator. Oral exit interviews: *What was good today? What didn't you like? Can this help you? Your job? What other things would you like? Do you want to do more?*

SAMPLE LESSON PLAN FOR MATH CLASS AT MACLEAN FOGG

COMPETENCY: Measure a given length or object in standard and/or metric measurement; determine if the measurement lies within a given range. (#4)

BASIC SKILLS: Recognize metric measure and U.S. standard measure on a blueprint, convert U.S. standard measure to metric measure, order decimals.

CLASS: Workplace Math Two 1 1/2-hour sessions

RESOURCES/MATERIALS/TEXTS: Calculators, teacher-made worksheets, newspaper article, blueprints, metric conversion chart

WARM-UP/REVIEW:

- Instructor reads newspaper article aloud on the relevance of metric measure in industry as students read silently.
- Discuss the article with emphasis on the importance of the metric system in industry and in the company.
- Divide the class into small groups and ask them to list all metric measures used in their jobs.
- Instructor puts the combined lists on the board and concludes with a whole group discussion.

PRESENTATION:

- Give students a metric conversion chart and demonstrate how to perform conversions. Students may use calculator to assist in these conversions.
- Practice several conversions on the board with the students.

GUIDED PRACTICE:

- Working with a partner, have students complete the measurement enrichment worksheet as the instructor checks for understanding.
- Discuss the concept of "dual dimensioning" which companies in international trade use on their technical drawings and specifications. With dual dimensioning, both inch and metric dimensions are given.
- Present one or more company blueprints and ask students to scan and identify the metric and the U.S. standard measurement.

APPLICATION:

- Individually, students complete a teacher-made worksheet showing different parts of a blueprint.
- The students are asked to label metric and U.S. standard measurement and to convert the standard measurement in inches to metric millimeters.

COMMENTS: The students were very involved with the discussion on the metric system and its use in industry. They are starting to realize the importance of the metric system in their company and jobs.

SAMPLE LESSON PLAN FOR MATH CLASS AT METALEX

COMPETENCY: Use a four function calculator to calculate machine down time. (# 7) Determine if the weight per square foot of a product falls within a specified range, both in terms of pounds and percentage. (# 10)

BASIC SKILLS: Apply problem solving strategies, use a calculator, calculate percents, set up ratios.

CLASS: Basic Math in the Workplace One 1 1/2-hour session

RESOURCES/MATERIALS/TEXTS: Overhead projector, teacher-generated worksheets and transparencies, computer, calculators, EMS - Basic Math Skills Operations Software, Problem Solving Sheets from *Get It Together,* M & M's, *Spectrum Mathematics*

WARM-UP/REVIEW:

- Review reading and problem solving activities.
- Review calculator use and percent using workplace numbers.

PRESENTATION:

- Discuss a specific problem and use a cooperative learning structure to solve it.
- Demonstrate calculator functions and calculator memory using teacher-made instruction guide.
- Discuss percent and do problems on the calculator using the percent and memory keys. (Use numbers used on the job.)
- To compute percents, students will count M & M's by color, and set up ratios of each color to the whole and solve.

GUIDED PRACTICE:

- Practice on teacher-made worksheets and in student text books: *Get It Together, pp. 71; Spectrum Mathematics* (Purple pp. 49-51, 59, 60; Blue pp. 73-75, 85, 86)
- If time permits, use EMS software on the computer.

APPLICATION:

- Students use a calculator to successfully complete teacher-made worksheets on all functions of the calculator, especially percent.
- Potential workplace application: use a calculator to compute machine down time.

COMMENTS: The Filter Department Supervisor commented on an improvement in students' paperwork. Students need easier memory problems for the calculator than the ones on the credit worksheet. The students became more skilled and confident with the calculator as a result of the extended practice time; therefore, the M & M's game and the software will be used at a later time.

SAMPLE LESSON PLAN FOR READING/WRITING CLASS AT BAXTER HEALTHCARE

COMPETENCY: Write a clearly-stated and well-organized memo. (# 3)

SKILLS: Write sentences, paragraphs, numbers, dates, times, and technical words; recognize and use correct memo format, concise language, and non-biased language; select relevant details; record essential information; use correct punctuation and capitalization; proofread for errors.

CLASS: Reading/Writing Enhancement One 2-hour session

MATERIALS/RESOURCES/TEXTS: *Writing for Employment* - Unit 8, memo evaluation form, chart paper, markers, student journals

WARM-UP/REVIEW:

- Brainstorm/Discussion: Review memo format and concise and non-biased language presented in previous lesson.

PRESENTATION:

- Introduce and discuss memo assessment form and criteria for a concise, well- organized memo
- Instructor describes scenario that requires a written memo.

GUIDED PRACTICE:

- In small groups, students choose roles of writer, leader, and checker and compose memos according to details in scenario.
- After proofreading their work, groups exchange memos and complete memo evaluation form for the other group's work.
- Return the memo and form to the original group.
- Discuss as a whole class focusing on questions and variations.

APPLICATION:

- Role Play: Have student volunteers role play a team meeting which requires members to write a memo to other co-workers. Students can record essential information and clarify details.
- In groups, students draft a memo using the details of the role play.
- The final copy is written on chart paper.
- Each group's leader presents the memo to the whole class for discussion.
- Journal entry: One positive, one negative, and one question which resulted from today's work.

COMMENTS: This lesson went well; the students responded favorably to the topic and enjoyed the activity. The length of the memos generated depended upon the ability of the students.

SAMPLE LESSON PLAN FOR READING/WRITING CLASS AT RELIABLE POWER

COMPETENCY: Construct meaning and summarize key concepts in company-related materials. (#1)

BASIC SKILLS: Read for literal comprehension, paraphrase, use context clues, read and understand technical and non-technical vocabulary, write phrases, sentences, and paragraphs, record essential information, distinguish between relevant and non-relevant information.

CLASS: Reading/Writing Enhancement One 2-hour session

MATERIALS/RESOURCES/TEXTS:

Sentence stems for warm-up exercise, word list, cloze exercise, *What's in a word?*

WARM UP/REVIEW:

- Sentence stems related to job descriptions on board or overhead.
- Each student chooses one and completes it orally.

PRESENTATION:

- Selected words from job descriptions are listed on handout for students.

- Brainstorm commonalities and group words according to job relativity.
- Students select words related to their jobs, and groups are formed based on similar selections and job responsibilities.

GUIDED PRACTICE:

- Each group uses their selected words to write a paragraph cooperatively to describe their jobs.
- Teacher moves from group to group to supervise and assist in editing and finalizing draft.
- Each group writes their job descriptions on transparencies or chart paper.
- Groups read paragraphs to class and respond to questions from other students.
- All students participate in reading paragraphs.

APPLICATION:

- Complete cloze exercise with targeted words deleted.
- Assign pages 109 through 111 in *What's in a Word?*. Students read and summarize article verbally and write in their journals how their jobs compare with those of similar workers in Japan.

COMMENTS: The lesson was designed to meet the emphasis that the company wants placed on conformance with ISO 9000. Employees must be able to explain their job functions and answer questions concerning their jobs. The whole-language approach was used for all competencies, and so the students responded well to the combination of reading, writing, and verbalizing.

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APPENDIX

GENERAL NEEDS ASSESSMENT FOR SUPERVISORS

Name: ______________________________ Date: ____________________

Department: __________________ Position: ______________________________

Company/Address: ____

____

Telephone: ________________ Interviewer: ______________________________

1. Could you give us some background information on your company?

2. Could you give us some background information on your employees?

   - What jobs do they do?

   - How long have your employees worked here?

   - Have employees' jobs changed recently? How? Are changes expected in the future?

- What are the educational backgrounds of your employees?

- What types of training have your employees had? What other types of training are planned?

3. How will employees be selected/recruited for this program?

4. What are your expectations for the proposed program?

5. If you have had classes before, are there any changes you would like to see?

ESL NEEDS ASSESSMENT FOR SUPERVISORS
(ORAL VERSION)

Name: ______________________________ Date: ____________________

Dept: ______________________________ Position: ____________________

Company/Address: ____

____

Telephone: ______________________ Interviewer: ____________________

1. How are people trained to do their jobs if they don't speak English?
2. Do Limited English Speakers in your department require closer supervision?
3. Do they have less job flexibility? In what way?
4. Are your employees interested in learning English?
5. Do you have to use interpreters? How often? How much time is wasted?
6. Are there safety problems involving language? What are they?
7. Are there aspects of the job having to do with waste, quality, and appearance that may be difficult to communicate to the workers? Give examples.
8. How does English affect record keeping?
9. Are there misunderstandings between native English speakers and Limited English Speakers? What are they?

10. How well is the overall work process grasped?

11. What happens when there are breakdowns and emergencies?

12. Which of the following situations are problems for employees?

    a) Understanding job duties --Which duties?

    b) Understanding instructions --Which instruction?

    c) Following directions --Which directions?

    d) Following production changes

    e) Understanding work errors

    f) Correcting work errors

    g) Reporting problems

    h) Understanding company policy

    i) Calling in sick

    j) Complying with attendance/punctuality policies

    k) Asking for clarifications when necessary

    l) Understanding general conversation

13. Which of the following are difficult for employees to understand and/or complete?

    a) Time cards

    b) Production quota records

    c) Error notices

    d) Safety warnings

    e) Company newsletters

    f) Company notices/memos

    g) Job specific forms

Adapted from: *Guidelines for Implementing Workplace Literacy Programs*, Funded by a Texas Education Agency Adult Education Special Projects Grant. June, 1990.

Workplace Literacy: A Curriculum Development Guide, Cambodian Mutual Assistance Association of Greater Lowell, Inc. Funded by the U. S. Department of Education Office of Vocational and Adult Education.

ESL NEEDS ASSESSMENT FOR SUPERVISORS
(WRITTEN VERSION)

Name: ______________________ Date: ______________________

Dept: ________________ Position: ______________________

Company/Address: ______________________________________

____

Telephone: ________________ Interviewer: ______________________

A. Which (if any) of the following situations are problems for employees. Check all that apply.

	Major Oral/Written	Minor Oral/Written	None Oral/Written
Understanding job duties	___ ___	___ ___	___ ___
Understanding instructions	___ ___	___ ___	___ ___
Following directions	___ ___	___ ___	___ ___
Following production changes	___ ___	___ ___	___ ___
Following safety rules and practices	___ ___	___ ___	___ ___
Understanding work error	___ ___	___ ___	___ ___
Correcting work error	___ ___	___ ___	___ ___
Reporting problems	___ ___	___ ___	___ ___
Understanding company policy	___ ___	___ ___	___ ___
Calling in sick	___ ___	___ ___	___ ___
Complying with attendance/ punctuality policies	___ ___	___ ___	___ ___
Asking for clarification when necessary	___ ___	___ ___	___ ___
Understanding general conversation	___ ___	___ ___	___ ___

B. Which of the following are most difficult for employees to understand and/or complete?

	Major	Minor	None
Time cards	___	___	___
Production quota records (job vouchers)	___	___	___
Error notices	___	___	___
Safety warnings	___	___	___
Company newsletters	___	___	___
Company notices	___	___	___
Job specific forms	___	___	___

C. How important is each of the following to you?

	Major	Minor	None
Instruction to aid employees in understanding and completing specific forms.	___	___	___
Instruction relating to specific job duties.	___	___	___
Instruction with heavy emphasis on oral communication.	___	___	___
Instruction with emphasis on basic reading and writing skills.	___	___	___
Instruction with emphasis on math skills.	___	___	___

D. General Comments:

____

____

____

Adapted from: *Guidelines for Implementing Workplace Literacy Programs* by Marie H. Jester. Funded by a Texas Education Agency Adult Education Special Projects Grant. June 1990.

MATH NEEDS ASSESSMENT FOR SUPERVISORS

Name: ____________________ Date: ______________________________________

Dept: _____________________ Position: ___________________________________

Company/Address: ____

____

Telephone: _________________ Interviewer: _______________________________

1. Which of the jobs require specific math skills? What are these specific math skills?

2. Are measuring tools used? What are they?

3. What other math skills (other than job specific) are employees expected to have?

Page Two

4. What types of manuals, forms, etc., should be included in the course content?

   Paycheck?

   Time cards?

   Insurance forms?

5. Are you doing SPC and how will it affect the math instruction?

READING/WRITING NEEDS ASSESSMENT FOR SUPERVISORS

Name: ______________________ Date: ______________________________

Dept: ______________________ Position: ____________________________

Company/Address: ____

____

Telephone: ________________ Interviewer: __________________________

1. What are some specific examples of written materials that are written or read by the persons in your section?

2. What are some specific problems relating to speaking and listening that you have observed in your area? List 2 or 3.

3. What are some specific problems relating to reading and writing that you have observed in your area? List 2 or 3.

4. What would be the one thing that you would like to correct or change with the people under your supervision?

5. Do the employees communicate in writing with management, fellow workers, supervisors, or support staff?

6. How does the company notify or inform employees concerning necessary information?

7. How do you give instructions to your employees?

ESL EMPLOYEE NEEDS ASSESSMENT
(ORAL VERSION)

Name: ____________________ Date: ______________________________________

Dept: ____________________ Position: ___________________________________

Company/Address: ____

____

Telephone ___________ Interviewer: ____

GENERAL

1. Where are you from? How long have you been here?

2. What city do you live in?

3. What language do you speak at home?

4. What language do you speak outside of work?

5. Do you use your native language in your community? (i.e. church, stores, banks, newspapers)

6. Why do you want to learn more English?

7. Have you studied English before this?
   - a. Where?
   - b. How much?
   - c. How did you like it?

Job Related Questions

1. What is your job? Tell me about it.

2. How long have you been doing this job?

3. How do you use English on your job?
   - a. To speak to your supervisor?
   - b. To speak to the other workers?
   - c. To speak to the customers?

Page Three

4. Do you do any writing on your job?

   a. What kind?

   b. How often?

5. Do you do any reading on your job?

   a. What kind?

   b. How often?

6. Do you use any math on your job?

   a. What kind?

   b. How often?

7. What language problems do you have?

   a. Can you understand when people speak to you?

   b. Do people understand you?

   c. Do you understand your supervisor's instructions?

   d. Can you tell your supervisor your work problem?

MATH NEEDS ASSESSMENT FOR EMPLOYEES

Name: ____________________ Date: ____

Dept: ____________________ Position: ____________________________________

Company/Address: ____

____

Telephone: ____________________ Interviewer: ______________________________

1. What is your job? Describe your job.

   How long have you been doing this job?

2. Do you see any changes coming up in your job or in the company?

3. What math do you use on your job? How often?

			Always	Seldom	Never
SKILLS:	fractions	___	___	___	___
	decimals	___	___	___	___
	graphing	___	___	___	___
PROCESSES:	SPC	___	___	___	___
	inventory	___	___	___	___
	packing	___	___	___	___
TOOLS:	measurement	___	___	___	___
	calculator	___	___	___	___

4. What math do you need to learn?

    a. Personal?

    b. Employment?

5. What are your expectations from the class?

6. Have you participated in other classes in the workplace?

7. Do your co-workers know about these classes?

8. How do they feel about the classes?

READING/WRITING NEEDS ASSESSMENT FOR EMPLOYEES

Name: ____________________ Date: ______________________________________

Dept: ____________________ Position: ____________________________________

Company/Address: ____

____

Telephone: ____________ Interviewer: ____________________________________

1. Have you ever participated in a training program or a class at work?

2. What is your job? Describe your job. How long have you been doing this job?

3. Who do you need to talk to on your job?

4. What are the easiest parts of your job? What are the most difficult?

5. Has your job changed at all in the past year? How? Do you see any changes coming?

6. Do you have to do any writing on your job? What kinds? How often?

7. Do you have to do any reading on your job? What kinds? How often?

8. Do you feel you always understand what someone else is saying?

9. Do you have to follow instructions? Are they written/oral? Do you give directions to anyone?

10. What would you like to learn to help you on your job?

WORKPLACE COMPETENCY CHECKLIST

NAME: ____
First Last

Evaluate progress by writing the date(s) of assessment in the correct column.
0 = student demonstrates no ability
1 = student demonstrates minimal ability
2 = student demonstrates satisfactory ability
3 = student demonstrates mastery

COMPETENCIES	0	1	2	3

Comments: ____

____

____